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Vol. 3 DECEMBER, 1922 No. 9

The American Cinematographer

The Voice of the Motion Picture Cameramen of America; the men who make the pictures

FOSTER GOSS, Editor
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Table of Contents
FOR
DECEMBER

Page
Education and "Pictures"—By Dr. Remsen Du Bois Bird 4
"Kicks" In Comedy Require Courage and Skill—By Fred Jackman, A. S. C. 5
What Photography Means to "Robin Hood" 7
Passing the Buck—By Victor Milner, A. S. C 9
The Editors' Corner—Conducted by Foster Goss 10
English Turn to Camera Structure 12
How Cameras Act in Honolulu—By Jackson Rose, A. S. C 13
Rothacker Outlines English, French and German Film Affairs 15
Graininess in Motion Picture Positives and Negatives, Final Installment —By Arthur C. Hardy and Loyd A. Jones 16
In Camerafornia 25
Releases 26

An educational and instructive publication espousing progress and art in motion picture photography while fostering the industry.

We cordially invite news articles along instructive and constructive lines of motion picture photography from our members and others active in the motion picture industry. All articles must be signed by name and address of writer.

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Education and 'Pictures'

By Dr. Remsen DuBois Bird,
President, Occidental College

Famous educator discusses the place of the motion picture in world's environment. Films are classified as important educational factor.

Education is unfolding—development—direction. Sometimes it just happens. Sometimes it just happens right; sometimes wrong. Sometimes it is consciously directed. Sometimes it is consciously directed right and sometimes wrong. As to the latter, witness the Artful Dodger and all the acumen gone astray in suggestion to perversion, selfishness and crime. But sometimes, many more times, the direction is right and when so, it makes for living, for happy living and reasonable and intelligent usefulness, and may the blessings fall on every formal and informal educational influence that consciously or unconsciously produces this desired result.

Three Institutions

There are three institutions in society, which have set for themselves just this task. They are the church, the home, and the school. As to the church, education is unquestionably its avowed purpose. The church teaches that it may produce life that is better and more useful. But mutual recriminations, petty bickerings and befogged vision have sorely limited its power in the production of those virtues of love, joy and peace, of kindness, goodness and faithfulness, of meekness and self control, which are essential to happy and to useful living. There are, however, voices in the tree tops and a stirring of the wind, and men and women of good will are finding one another though they be divided by creed and color and clan.

The Home

With the church stands the home, the foundation of our society, the bulwark of our liberties, the greatest of all teachers. "Son, hearken unto my words," saith the home, "and give attention unto my saying. Get wisdom and discretion. Blessed is the man that getteth wisdom, yea, the man that getteth understanding, for the getting thereof is better than the getting of silver and the gain than fine gold."

How beautiful is the home! Yes, but principally in retrospect. A multitude of interests, a burden of social obligations, the nervous energy of the day, the cost of living, the apartment house evil, and behold, the home is almost gone. Still, here also, there are signs, signs of weariness with the empty going and coming, and perhaps, they who seek happiness will find it again in the quiet nurture by the familiar fireside of the unfamiliar home.

The School

And there is the school, that institution of society, founded and fostered for the sole purpose of education. How proud we have been in America of that school! Our compulsory education, our magnificent buildings, our wholesome athletics, the flood of students seeking to furnish themselves for leadership in the multitude of our institutions of higher learning. How proud, until the war gave us the grand jolt, revealing the fact that 30 per cent of the youth of the draft age were illiterate, 47.4 per cent undeveloped beyond thirteen years mental growth, and 33 1-3 per cent unfit physically for military service.

Victimized by petty politicians, with teachers underpaid and therefore under-trained, our schools have to a considerable extent lost the gleam of life for abiding happiness and real usefulness. They have so vocationalized in certain areas as to become ridiculous and they have stressed the practical to the loss, the incredible loss of the fine art of living and the quest for it in the love of beauty, truth and righteousness. But there is no field of human endeavor where there is to be found more sincere, unflaunted sacrificial service and love of humanity, and despite the truth of much criticism, the school is the great servant of education and is right now increasing in power and prestige.

Informal Influences

Then there are the informal educational influences, but in educating value quite as important as the church, the home and the school. These are the street, the imagination, and the places of amusement. How much of what we are and hope to be, or fear to be, has come from the unconscious influences of companionship or through the jostle of our fellows in the street? How much has come from our own sudden dreaming—the desire for success clearly visualized and fixed in our ambition, the refreshing, haunting, longing, awakened by the inevitable girl, or from the heroic self devotion to some worthy task, welling up, like a new spring, from some stray word, or book, or magnetic personality, or some adolescent dream.

Finally, there are the amusements, the game, in which we participate, and the stage, on which we gaze. It is in this last classification that we find the motion pictures, a new informal educational influence, sprung full-grown and mighty from the gods and the muses, and already reckoned one of the greatest educational forces in the world, and one, let me say, that bids fair to be of the greatest value for good.

No Town Too Small For Films

There are thousands of ugly Main Street towns in the United States and elsewhere, and millions of dwellers therein, who have been awakened to desire, ambition and appreciation with regard to the truly beautiful, who would never have been so awakened were it not for the influence of the motion picture screen. What a transformation has come, already, and we hope may reveal itself even more in the judgment of beauty, in the art of photography, in dress, in building, in furniture, in music, in decoration, in demeanor, which would not have been were it not for the pictures released in the numberless small and unkempt towns.

Heroes Change

The educational influence of pictures is not, however, confined to the aesthetic appreciations alone. It is also to be found in the formation of the standards of character. Whether these standards are the highest or not, they are being formed today to a considerable degree by the motion picture stars. The glorious hero of the school boy swinging along the lane is not Sir Galahad, or Ivanhoe, or any of the Henty stereotypes of yesterday. It is not the local strong man, or some famous pitcher or wielder of the bat, but it is Doug Fairbanks, or Will Rogers or Rodolph Valentino—the influence of Valentino seems the greatest right now—or Harold Lloyd or Charlie Chaplin, the heroes of the films. And what these men and the women who share their fame, present as virtue, in patriotism, honor, courage, love and truth, is at this moment in history moulding a countless host of boys and girls the whole wide world around.

Pictures are not only important in the fixing of taste and the forming of character, but they have given a wealth of information and of understanding otherwise unattained. How many of us have found compensation for the weary hour of some stupid "feature" picture that happened along, through the beauty of some travelogue, or the interest of some weekly, or the welcome information of some industrial film?

Binding Force of the Cinema

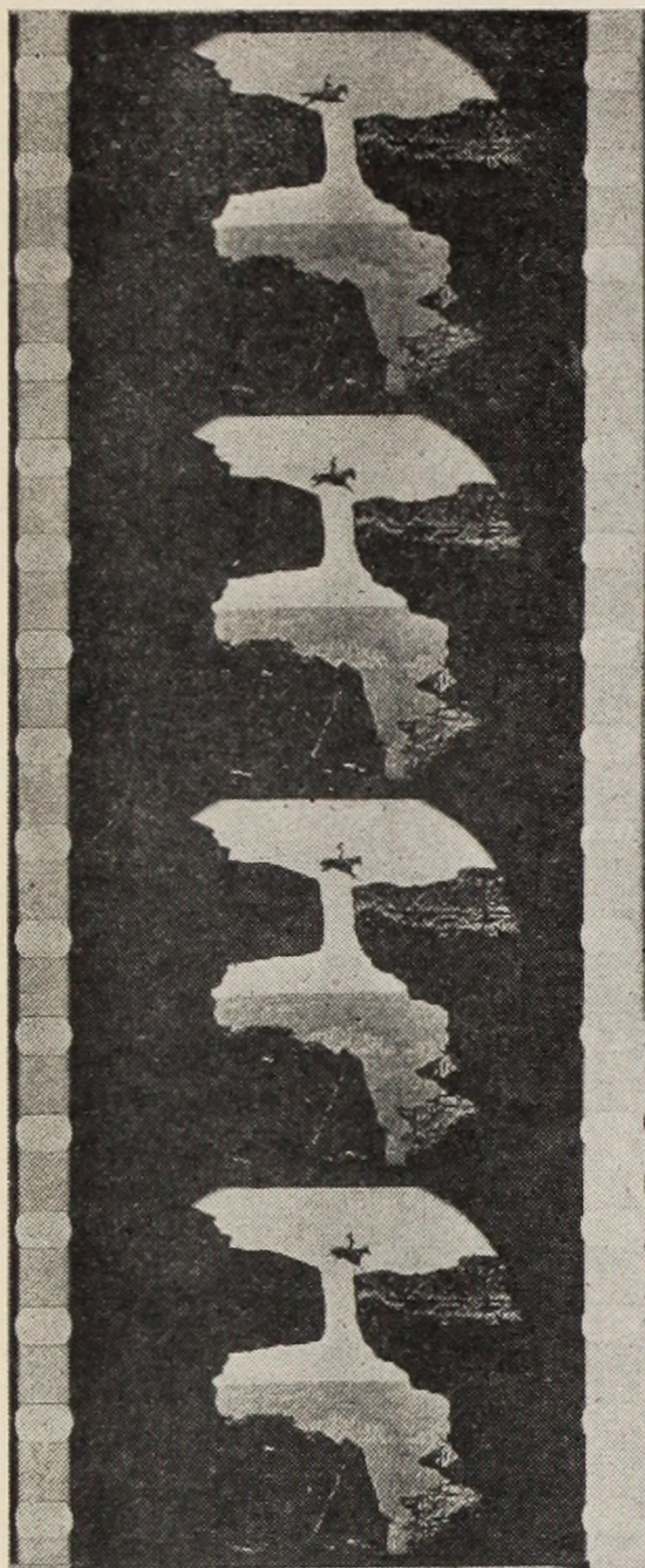
Pictures are not only a great educational force in themselves, and an increasingly conscious one, but they are, to some degree, helping to increase the value and efficiency of the institutions which have from time immemorial been

(Continued on page 21)

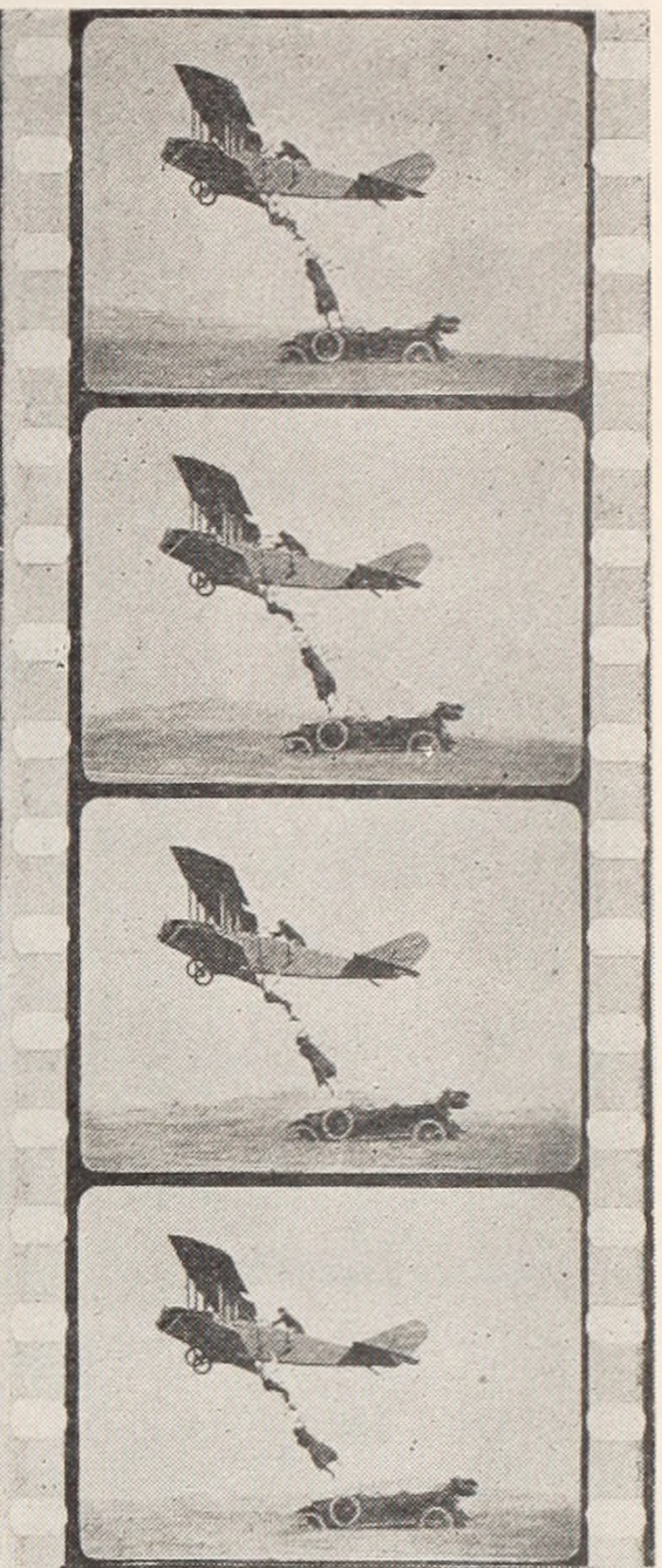
Comedy 'Kicks' Require Courage and Skill

By Fred Jackman, A. S. C.

Master of trick and comedy photography gives intimate accounts, for first time, of how scenes, which thrilled millions, were filmed.



Fred Jackman, President of American Society of Cinematographers.



Not many years ago a cinematographer was a man who photographed motion pictures of any and all descriptions, but the cinema art has evolved to such a comparatively high degree that the cinematographer of today is a specialist in some particular phase of the calling.

We have cartoons, news reels, scenics, dramas and comedies and in each branch there is enough to learn and know, to make it imperative for a man to specialize in whatever branch of work to which he feels himself best suited.

I find that the longer that I work at my special line, that of making comedies, the more I find how little has been accomplished as a successful comedy cinematographer virtually has to be able to turn his camera "inside out" and is called upon to do everything within the range of cinematographic possibilities

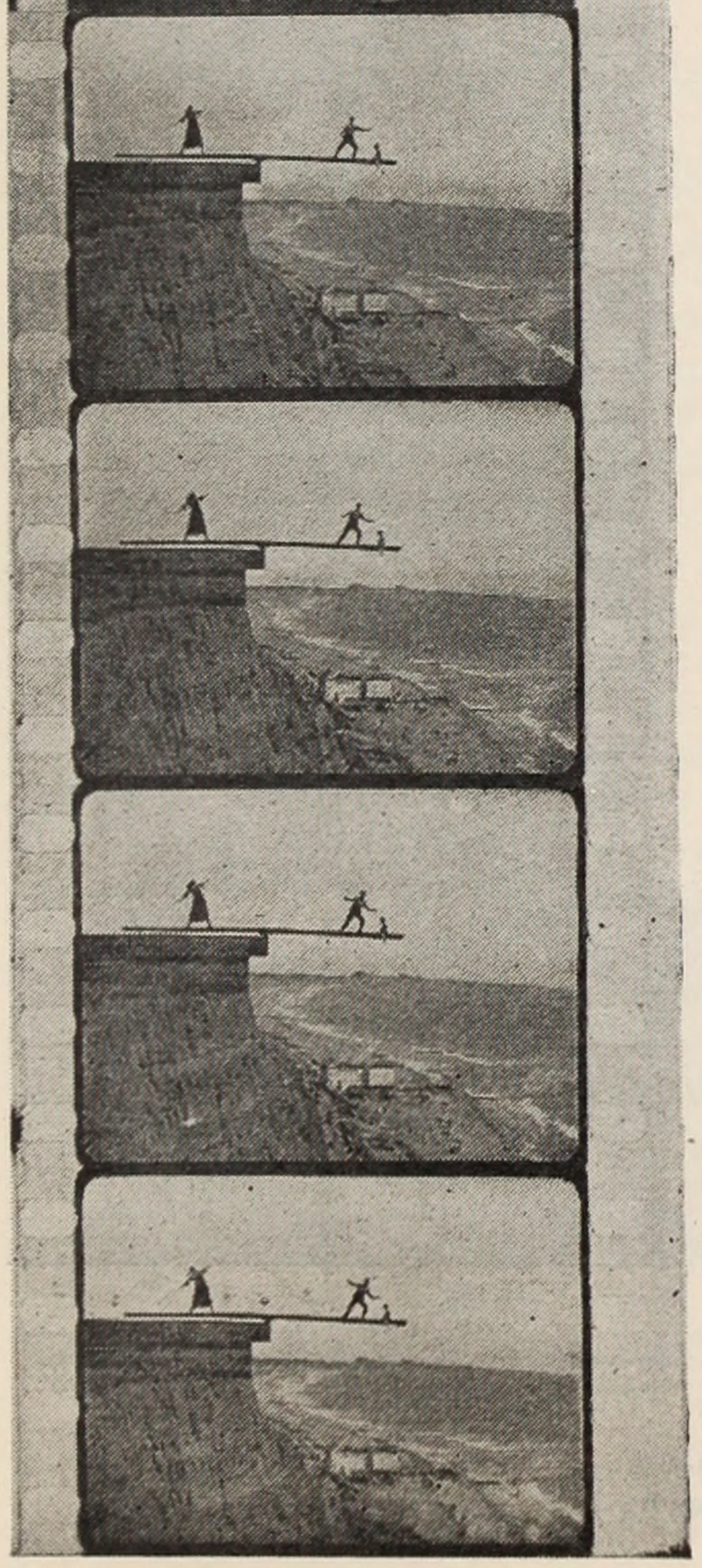
Camera Is Manipulated

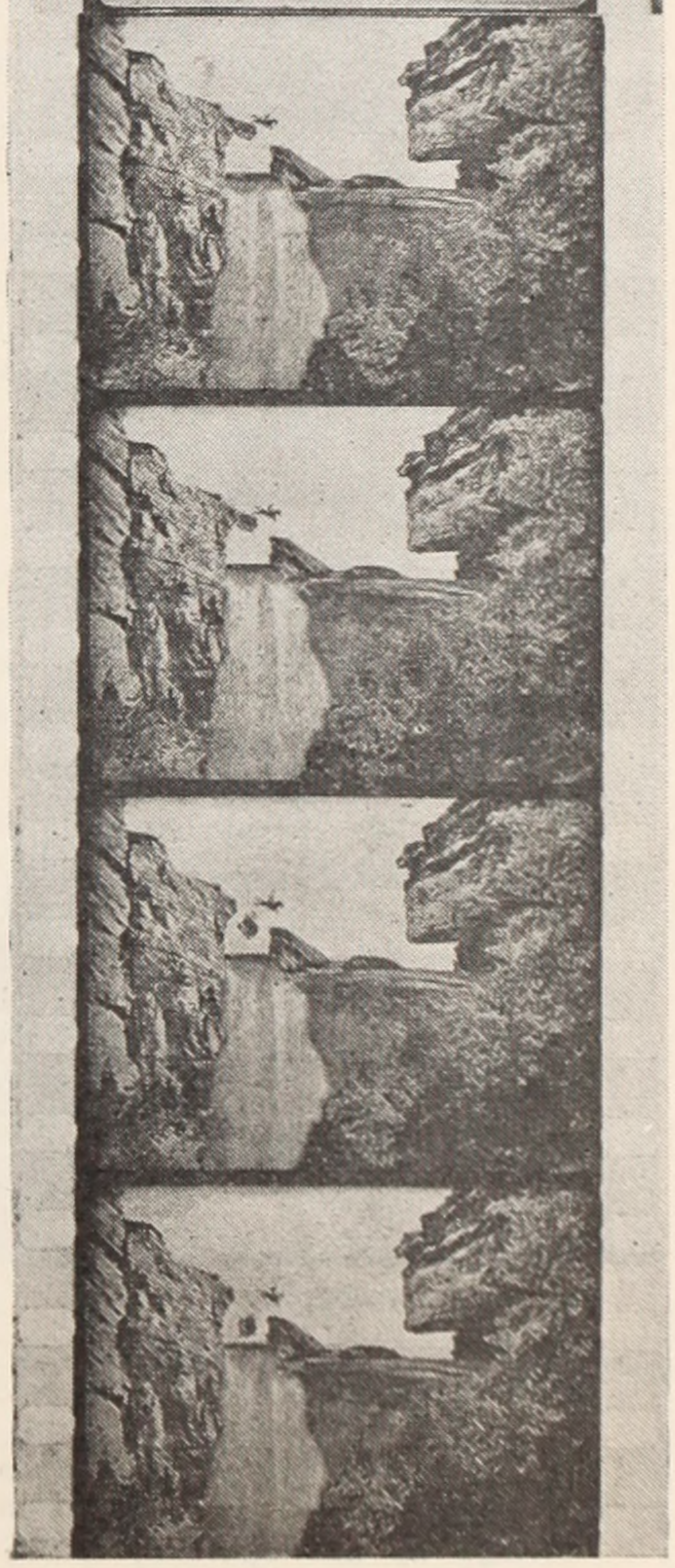
It is no longer a trade secret that the stunts and wild gyrations of the comedy production performers have been accomplished through expert manipulation of the photographic apparatus in the hands of the cinematographer.

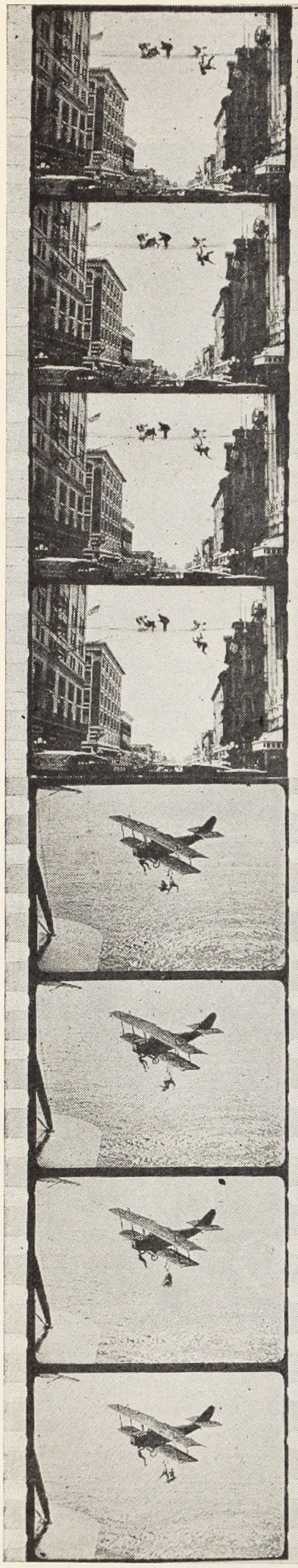
In my seven years' experience as chief cinematographer for Mack Sennett, we have never had a serious accident and all of our leading comedians, bathing girls, animals and other performers are still intact, although the public time and again has seen them in terrible automobile crashes, falls from high roofs, in horseback jumps over wide gaps at altitudes of hundreds of feet, in dashes in front of trains traveling sixty miles an hour, and in fights with clubs on the wings of tossing aeroplanes, etc., etc. These are some of the requisites which comprise the comedy production so much enjoyed by the comedy fan.

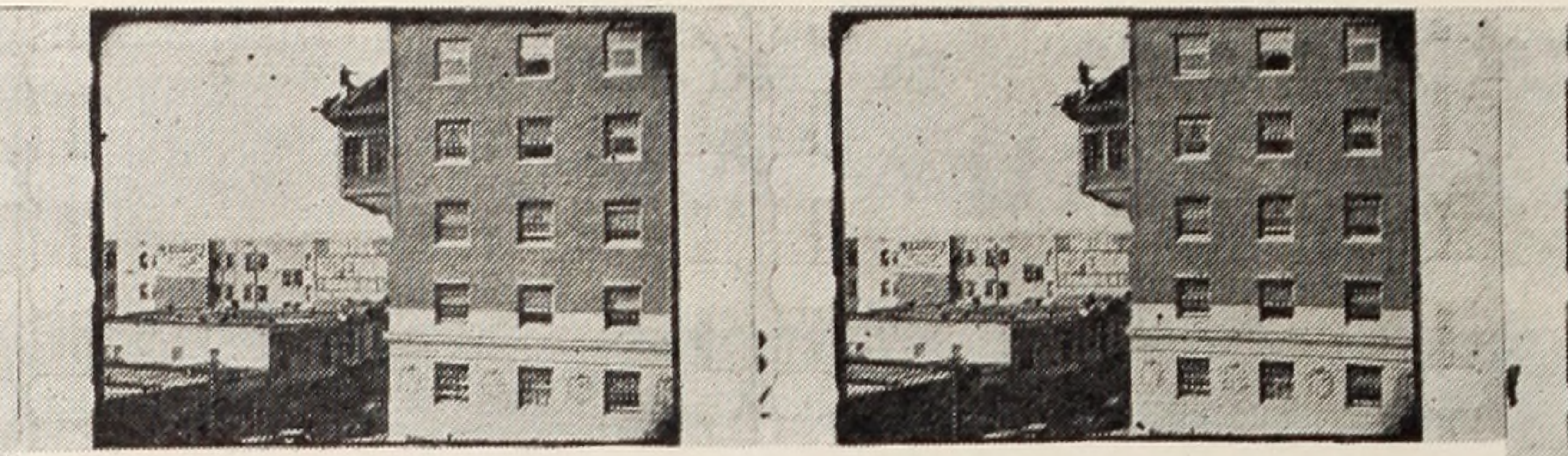
Cinematographer Draws Danger

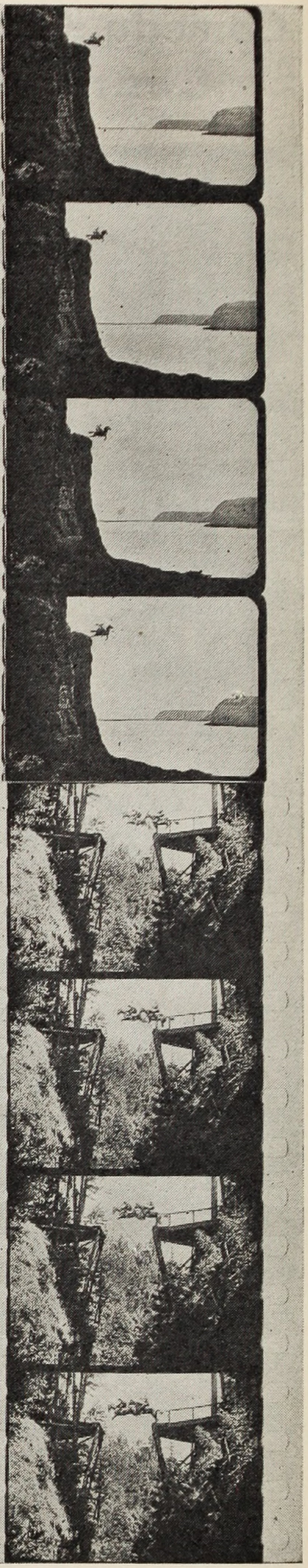
And in production of such comedies it is generally the man behind the camera who finds himself in the











most dangerous situations. I know that Providence has laid Its hand over my head many a time and this leads to the subject of this article.

A "kick" is the modern word for which Mr. Webster gives definitions to such words as thrill, excitement and fright. The aggregate of such words expresses the feelings, sensations, experiences and the like of the comedy cinematographer when he says he received a "kick." Of course "kick" also enters the parlance which smacks of alcohol, but the man who has to know how to operate all the minute adjustments of the cinema camera does not progress far if he makes himself subject to the latter sort of "kick."

A Few "Kicks"

Here are a few of the "kicks" I have experienced:

You have seen the typical plunging horses which, hitched to a fire engine, tear down the street and turn the corner periliously. Where was the cinematographer? Why, tied with a rope to the top of the smokestack of the fire engine so that he could use both hands on the camera cranks while the fire engine went around the corner on two wheels. Then you have seen the horses' hoofs pounding on the pavement and "Molly O" riding a bicycle before them. Where was I—just under the apparatus, tied again, and just missing the bumps and the top of the ground by inches.

You remember the freight train which stalls on the crossing and the collision which comes when the passenger flyer crashes through it, flinging carwheels, air tanks, pieces of iron and other debris in all directions. Where was the cinematographer? Just about three inches to one side of the path of the trucks of the boxcars as they flew through the air and on down the tracks.

You have seen the scene in which the man climbed down a rope ladder which he had dropped out of the side of a seaplane. Did you notice that the scene was taken from some spot on the same plane?

Up in the Air

Where was the cinematographer? Out on the end of the wing with one hand on the pan crank, the other on the camera crank, and with a rope which,

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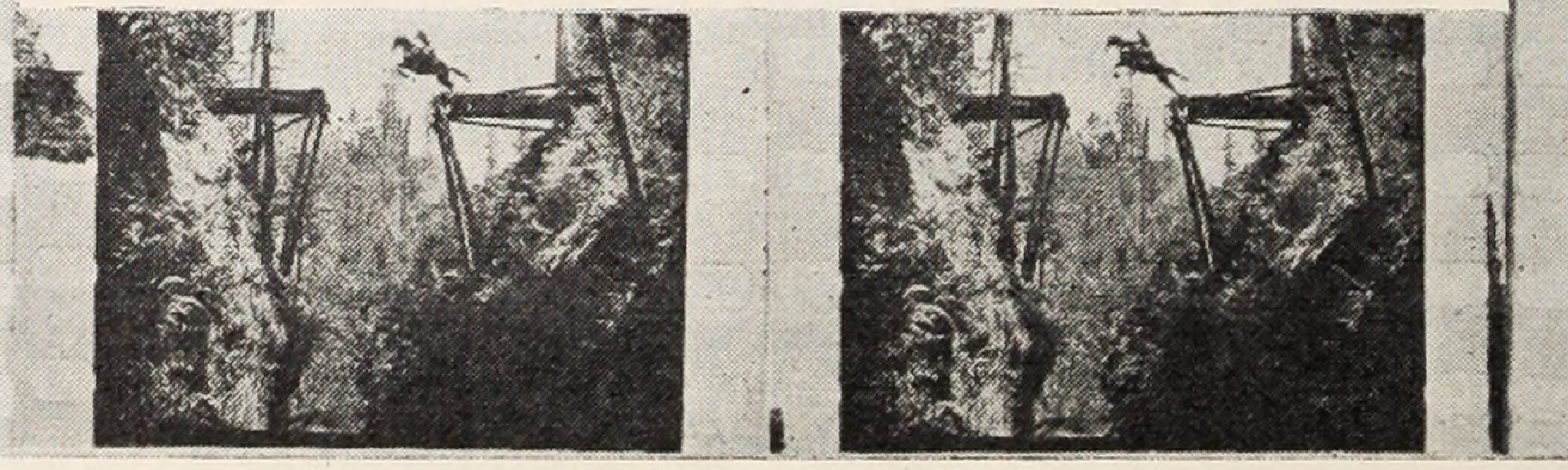
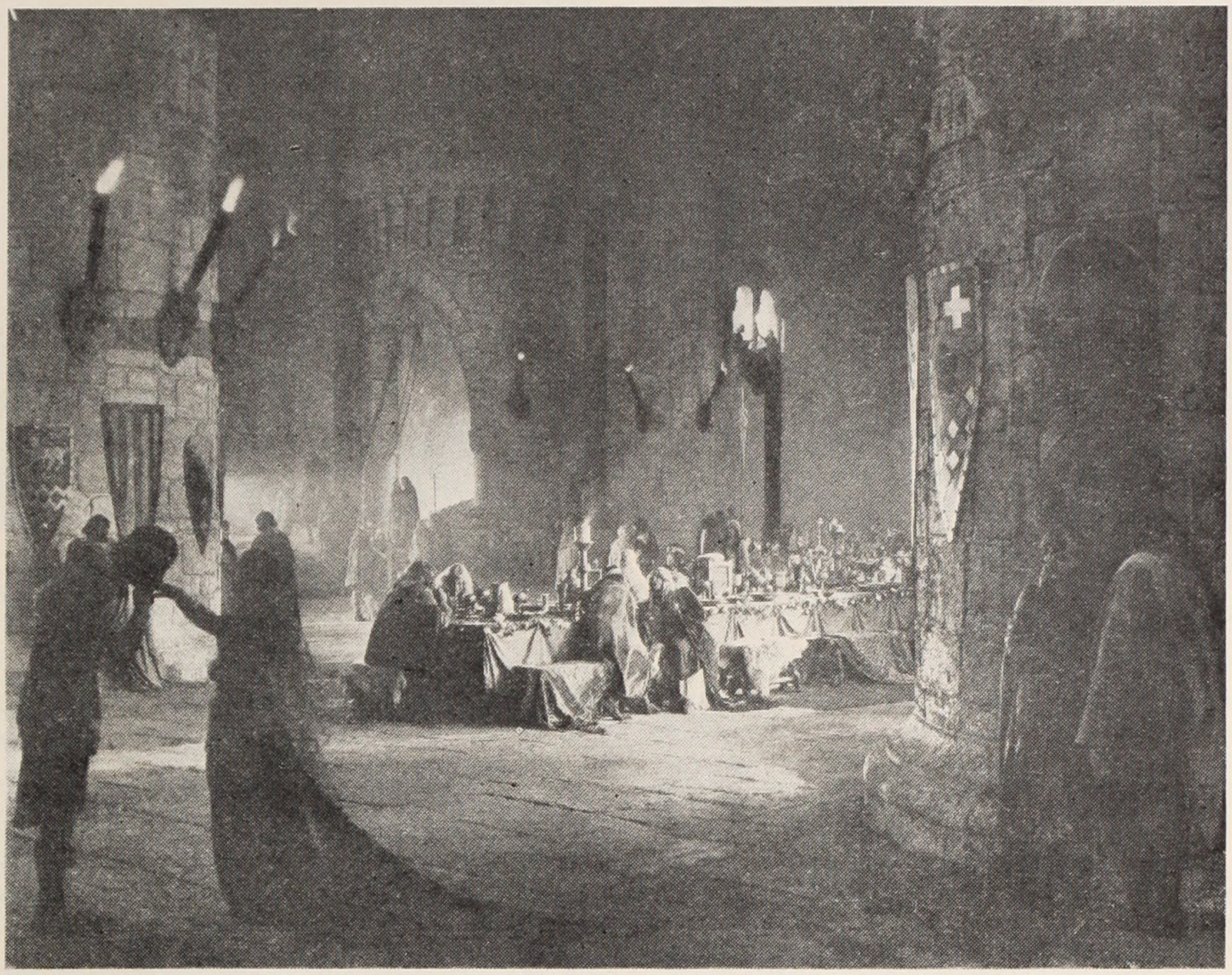


Ever see a horse jump from one rock and land on another several hundred miles away? No? But you must have if you are a motion picture fan. How is it possible? The ace cinematographer's genius, his knowledge of his camera, make it possible.

In Merry England—A Holiday Feast



An Example of the Massiveness of Setting Which Edeson Was Called on to Record. The Torch Effects Were Gained by Piping Natural Gas Through a Wad Soaked With Turpentine and Alcohol.

—Stills by Chas. Warrington

What Photography Means to 'Robin Hood'

—as viewed by the critic

Arthur Edeson's photography is reckoned as outstanding element in success of Fairbanks masterpiece. Importance of cinematography proved once more.

Rigorous critics apparently have formed a consensus of opinion that "Robin Hood" has ushered a new era in motion picture production. Douglas Fairbanks has been unanimously praised, not only for daring to produce on such an elaborate scale, but for bringing his efforts to consummation.

Whether the fact is generally known or not, Arthur Edeson, a member of the American Society of Cinematographers, is responsible for the photography in "Robin Hood" and, in being so responsible, contributes in a major degree to the success the picture is enjoying.

Without efficient photography, what would "Robin Hood"—even with the artistry of Fairbanks and the others associated in the making of the production—have been? In the instance of this vehicle as well as in all others, the success of the finished product hinges on co-operation and cinematography; and "cinematography" is meant to include composition as well as the arrangements of lighting effects.

Best of Career

Edeson's work in "Robin Hood" is regarded as the best of his career—which is a testimonial in itself. His achievement is not an over-night affair, but is the result of many days and nights of conscientious endeavor—plain hard work—during which he called to the fullest on his wide experience as a cinematograhper.

Art critics who have complained hitherto that motion pictures lack composition in the artistic sense of the word will do well to view the A. S. C. member's work in "Robin Hood." Edeson is authority for the statement that it was his aim to film each scene as a master artist would paint the scenes in question; hence the results attained.

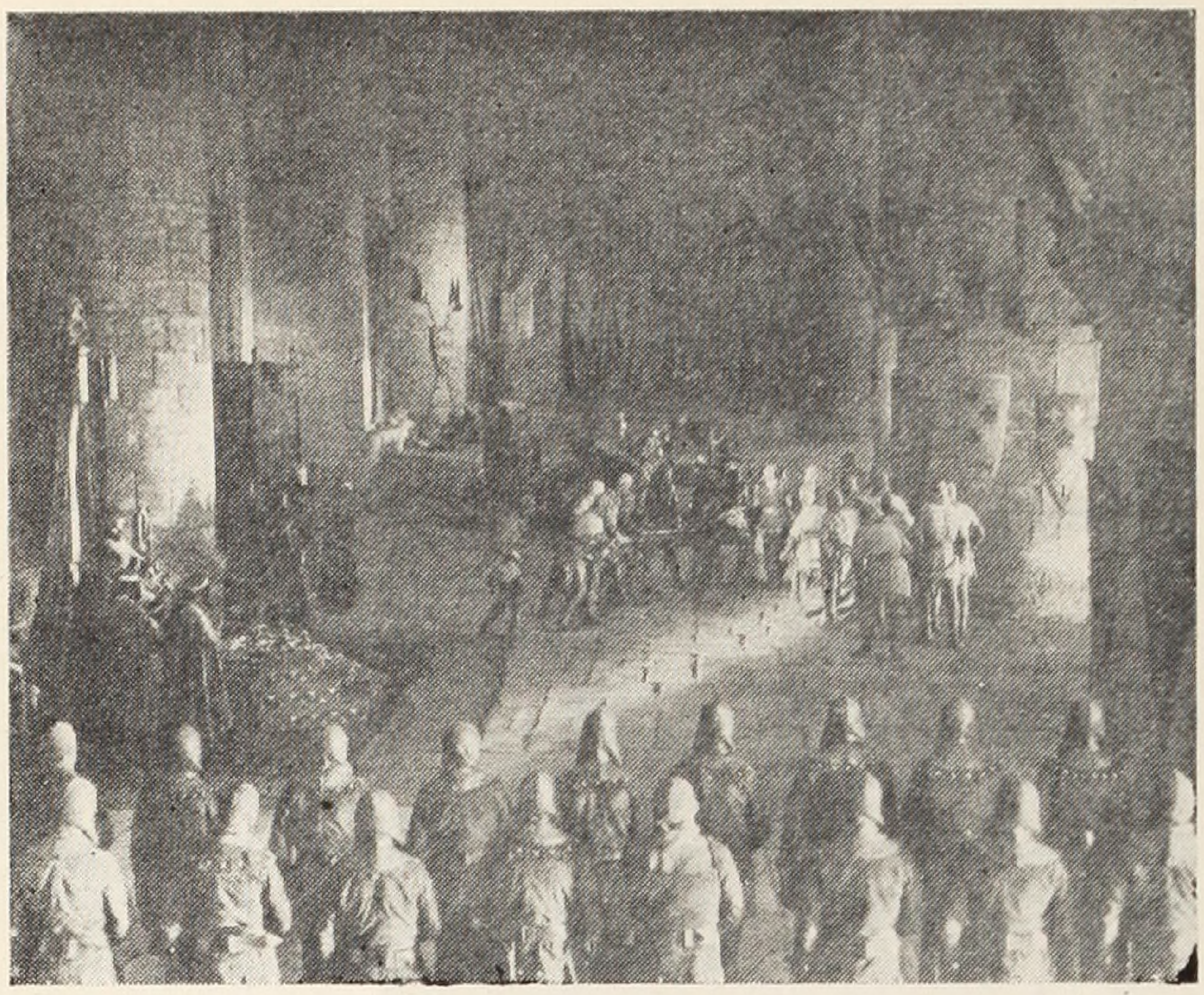
But what the artist would accomplish with the dab or the stroke of a brush in bringing out highlights, halftones and shafts of light, required on the part of Edeson, hours of thought. The artist's canvas measures several feet either way; the A. S. C. member's canvas was the largest sets ever constructed.

New York newspapers comment on the marvelous effects of the castles in the produtcion. It was due to trick photography that the castles appear, proportionately, three times higher on the screen than they actually are; and, as any one who has passed along Santa Moncia boulevard in Hollywood knows, the castle set towers so high that it is visible for many blocks.

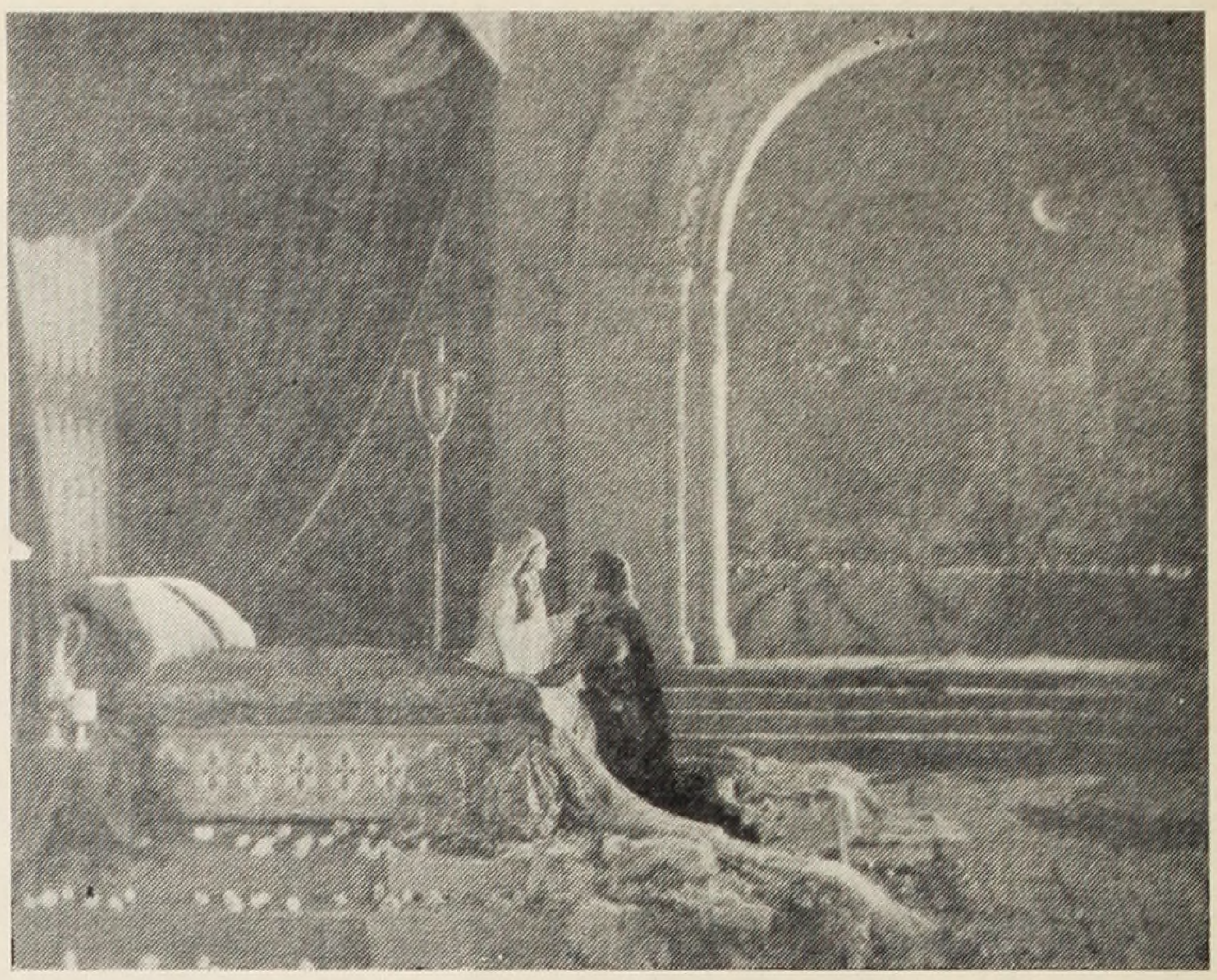
Low Foreground

How did he effect such tremendous height? When questioned on the subject, the A. S. C. member laid emphasis on the use of the low foreground in contrast to the natural height of the castle and towers. It was here that composition in all its importance was brought into play. Light and camera angles had to be studied minutely, all of which required fast thinking.

Imagine the difficulties and the hardships which confronted Edeson in the filming of this production. There



Expansiveness of Setting Made Long Shots Necessary, Yet Detail Had to Be Caught at the Same Time. The Huge Columns Are Shown Here.



The Nuptial Chamber. Moon and Spires Were Double Exposed In. Characters Are Fairbanks and Enid Bennett.

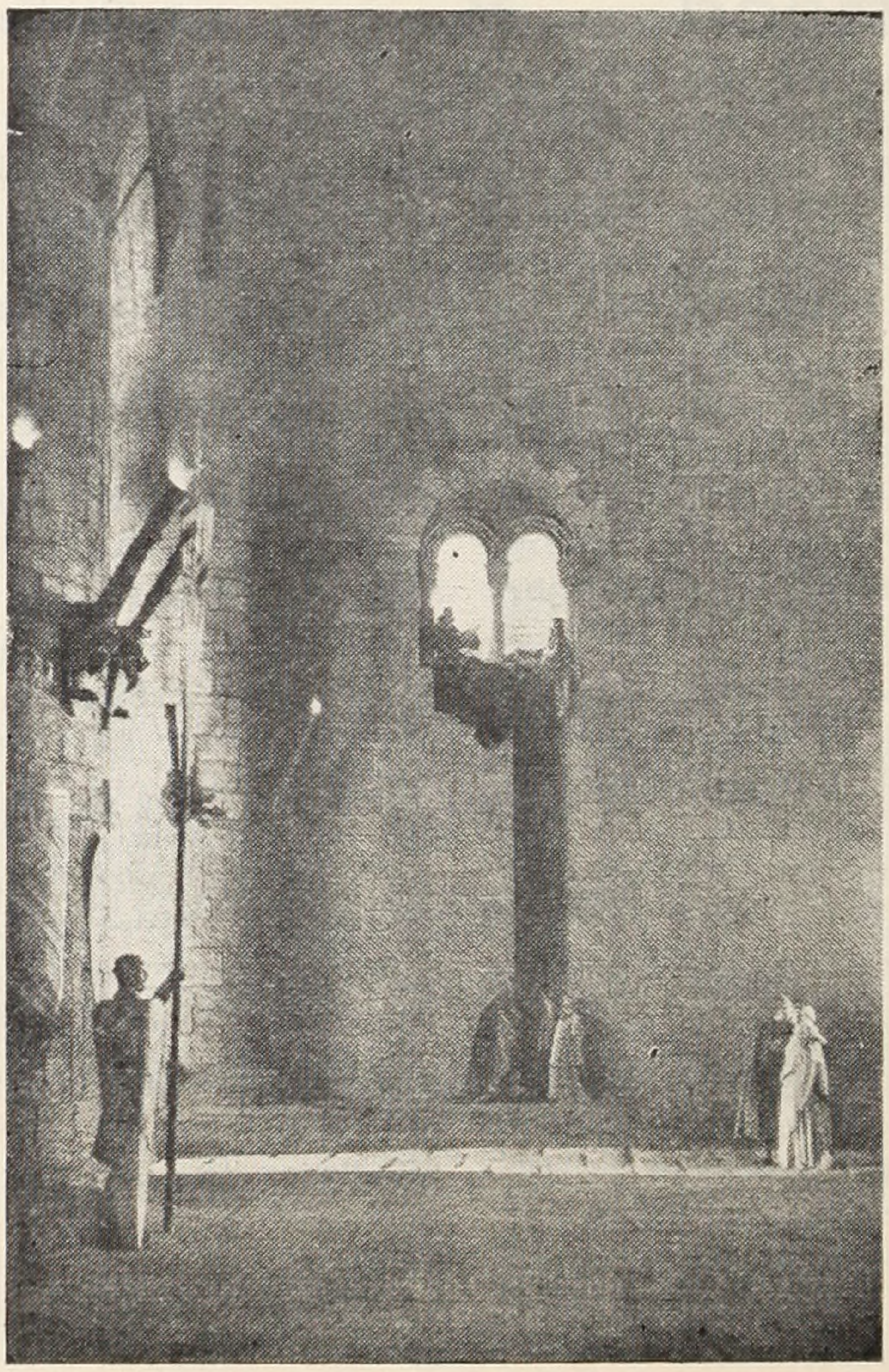
was not a bit of precedent to guide him, inasmuch as nothing similar had been attempted before. He was given a set 550 feet long and 180 feet high to photograph. Even the fireplaces were 90 feet high. Wilfred Bukland, in collaboration with Irving Martin and Edwin Langley, had created in these sets, probably, according to critics, the most notable ever used in films. Three hundred men had been employed over a period of two months for the actual physical construction of these sets. More lumber went into them, it is said, than is carried in the average lumber yard. All of this meant expense, tremendous expense, but what would the beautiful settings amount to on the screen if they were not photographed properly? Edeson's responsibility, then, may be realized.

Hours On Set

For three weeks he spent hours at a time on the set, for the purpose of "getting the feeling" of the work he was about to commence. He was told by men in the industry that it would be impossible to photograph and light the sets successfully; they were too tremendous. The A. S. C. member, as pointed out before, could not rely on precedent to guide him. He was in the position of the pioneer. For what he wanted to do he had to rely on himself. He had charts and blueprints made of the layout of the set. Over them he and Allen Dwan, his director, poured, much as if they were planning a battle, and figured the angles at which the cameras would be placed for the actual filming.

Built In Sections

Then came the important question concerning the color of the castle walls, which had to represent stone, such as placed in the edifices of Robin Hood's period. The set walls were constructed of plaster, erected in sections, so that they may be removed for future use. It was imperative, of course, that this necessary deception would not be revealed on the screen. At first it was thought that the walls should be painted a dark color, but a long span of experimentation, during which he worked with the co-operation of the technical department, established light gray as the most desirable color.



A View of the Height Which Had to Be Registered.

The problem then arose as to the proper method of lighting this exterior castle set. It became evident that sufficient equipment for artificial illumination was not available in such quantities to take care of the set entirely. So, with the aid of reflectors and diffusers, the A. S. C. member harnessed nature—the sun—and derived therefrom the desired service. Little artificial light was used on any of the scenes laid about the exterior of the castle.

Difficulties

Where days were needed to arrive at the system of lighting for the scenes about the exterior of the castle, a corresponding length of time was required to determine the best possible method for the filming of the castle interior scenes, most of which were night scenes, and had to be done in the daytime. When it is known that the far-famed set used in "Intolerance" could have been laid bodily into the castle interior set, then it is realized that Edeson's problem of lighting this interior was by no means simple. He had pillars 12 feet in diameter and 60 feet high to contend with; he had to film alcoves half-way up 90-foot walls.

Despite the contingencies involved, the cinematographic end of production did not delay the filming of "Robin Hood" for an instant. The entire production was completed in 16 weeks of actual shooting time. Compare this to the time it took to make other big productions.

Corps of Experts

"It is a question," Edeson said recently, "whether any producer in the future will want to enter production on such a large scale. The expenditure such a picture works is evident. Mr. Fairbanks had the courage of a trail blazer, else he never would have attempted a production on such a scale. 'Robin

(Continued on Page 22)

Passing the Buck

By Victor Milner, A. S. C.

Shifting of responsibility and evasion of issue is seen as not conducive to best results in cinema production.

"Passing the Buck" has become quite an institution in the motion picture game. Moreover, it is a very much used institution. In fact, "Buck Passing" might be said to be popular. The Buck Passer—for those who like analysis—is a cousin of the "Yes-Man" and a second cousin of the "Alibi Artist." There is a distinction between the Passer of the Buck and the Alibi Specialist. The Alibi Artist admits, more or less reluctantly of course, that he is to blame for the something that is wrong, but at the same time pulls forth an array of excuses which seek to set forth why he shouldn't be blamed for being to blame.

The Buck Passer, like his second cousin, also admits that there is something wrong, but instead of using excuses for a remedy, he shifts the blame to someone else, with the unmistakable intimation that he, himself, could never have under any conditions been the cause of the difficulties in question.

My earliest recollection of Passing the Buck dates back quite a few years. I was then young and unsophisticated to that gentle pastime of the present. My particular job at that time consisted of the developing of negative, printing, tinting, mixing the soup, finding a solution to eliminate air bubbles in Lumiere negative stock and sweeping up the darkroom of Eberhard Schneider. One day, while unwinding a roll of negative off the drying drum, I noticed that the scenes were all badly out of focus, so I shipped the roll to its owner, an amateur photographer of Dayton, Ohio. I followed the negative with a letter, stating that I thought it would be a waste of money for him to print the same.

Imagine my amazement a few days later when Mr. Schneider showed me a letter from the gentleman in Dayton in which our friend, the photographer, asserted that I had developed his negative out of focus.

The Dayton amateur photographer, I believe, was the Original Buck Passer. His followers today are quite numerous; numerous enough in fact to form a Convenient and Highly Elusive Order of Buck Passing.

Bone of Contention

It is a custom to Pass the Buck—we all do it. The prop man Passes the Buck to the prop room when the director finds things wrong on the set; the technical man to the technical department when the set is decorated with the wrong paper or paint; the assistant director to the production manager; the director to the scenario department or those responsible for the continuity; the cinematographer to the laboratory when the daily rushes don't appear satisfactory, and the laboratory back to the cinematographer, etc., etc. It is quite an Alphonse and Gaston affair.

Situation Must Be Solved

It is imperative for us as cinematographers to solve the laboratory situation. We must work out a method to eliminate "alibis," to get full co-operation in the laboratory, for, after all, what do our efforts amount to when our negative is turned over to a negative developer who has to put through from 250 to 400 racks a night? It is not an easy matter for him to work with an image one by three-quarter inches in size by a ruby light. A mighty good eye and very good judgment is required to accomplish such an undertaking.

It is our duty to work with the laboratory and to admit our mistakes. After all, we are not committing a crime when we make such an admission, for we are all human beings. Seeking to deceive a director by inducing him to believe that a bad shot is a work of art does not make for progress; much talk and little accomplishment are always unsatisfactory.

In return, the man who works conscientiously has the right to demand of those with whom he works that they do not Pass the Buck to him. The one who is responsible for producing a bad print from a good negative should admit his mistake for the benefit of all concerned, including himself.

"Square Shooting" Is Its Own Reward

We must realize that the combined efforts of an organization are required to produce a worth-while motion picture. Thank Heavens, that the fallacy of the "One-Man" idea of production is being detected, and that the time of its demise must not be far off.

For his Christmas present why not give him something that is both entertaining and useful?

What could be more appropriate than a year's subscription to

The American Cinematographer

The American Cinematographer—

Herewith find $3.00 to pay for one year's subscription to The American Cinematographer, subscription

to begin with the issue of .... 1923.

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The Editors' Corner

—conducted by Foster Goss

AN EXPOSITION WITHOUT PARALLEL

Probably the most stupendous—the superlative is used advisedly in this instance—undertaking ever attempted by the motion picture industry as a whole is the Motion Picture Industrial Exposition to be held in Los Angeles early in the summer of 1923.

At present the assurance looms that the affair will be international in its scope with the Latin American countries especially represented, since the exposition will in addition assume the form of a historical revue commemorating the one hundredth anniversary of the Monroe Doctrine.

Municipal, county and state officials and organizations, including Governor Stephens of California, Mayor Cryer of Los Angeles, the Los Angeles City Council, the Los Angeles County Board of Supervisors, the Los Angeles Chamber of Commerce, the Merchants and Manufacturers Association and the Los Angeles Realty Board, already have indorsed the project.

The motion picture industry, practically in a body, stands behind the undertaking: the American Society of Cinematographers, the Western Motion Picture Advertisers, the Motion Picture Producers' Association of Los Angeles, the Los Angeles Theatres' Association, the Motion Picture Theatre Owners' Association, the Los Angeles Film Exchange Board of Trade, the Screen Writers' Guild of the Authors' League of America, the Motion Picture Directors' Association, Motion Picture Art Directors' Association, the Electrical Iluminating Engineers' Society and the Assistant Directors' Association.

Besides its industrial ramifications, the exposition, because of the attention given the anniversary of the Monroe Doctrine, has come in for diplomatical consideration as well. In the face of claims that have been advanced that the Monroe Doctrine is obsolete, statesmen and educators are said to welcome the affair as strengthening the bonds which have prevailed between the United States and her sister republics to the south for the past century. The birth of the Monroe Doctrine will be reproduced in pageant form with, no doubt, prominent motion picture players playing the principal roles. Extending over a period of thirty days, other highlights in American history, such as the discovery of America, the founding of the first English settlement, the formation of the first Continental Congress, the inception of the army and navy, the birth of the American flag, and the signing of the Declaration of Independence, will be re-enacted. Selection of other events, construed as constituting high lights in the nation's progress, will rest with a commission of representatives from universities and historical societies throughout the country.

Throughout the thirty days of the fiesta there will be, in addition, musical and dance presentations, historical in their unfoldment.

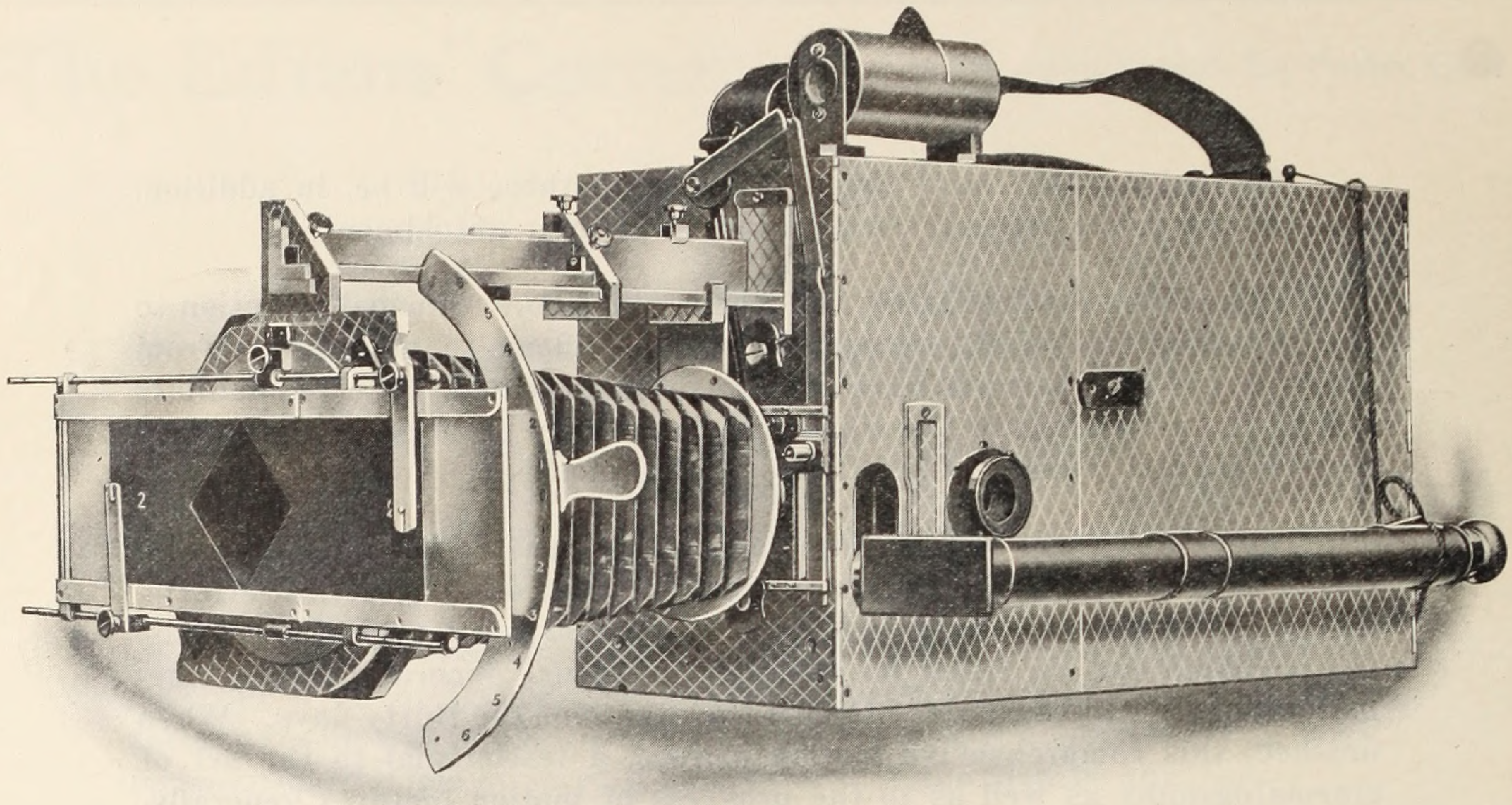
This will be the first exhibition which will devote principal attention to the display of motion picture paraphernalia. Cinema manufacturers from every part of the globe will have their wares represented. In these exhibits will be the indications of the whirlwind, but steady progress of the motion picture art and industry since the beginning of this century.

The exhibits will be placed on turn-tables, constructed on automobile floats, each of which, the center of spotlights and other electrical effects, will be driven before a reviewing stand. To preserve a record of the floats, the pageants and the other proceedings for future generations, ace cinematographers will be retained to film the events of the thirty days. When finished, this comprehensive motion picture, a testimonial to the art of cinematography as well as to the progress of motion pictures generally, will be released subsequently for showing throughout the world.

This enterprise, materialized to the fullest, will give concrete proof of the power of the cinema, power which even the most optimistic scarcely realize, a power for good which will grow and expand with the passing of each year.

President Harding is being urged to officially open the exhibition if his official duties will permit. Other dignitaries will be present. According to current plans, the exhibition will be held in Exposition Park, Los Angeles.

The question is: Who really MAKES motion pictures? The players, in association with the director and the others whose efforts go to make up the motion picture, may step to the set and give a dramatically perfect performance. But what would that performance mean to the cinema audience in Goshen several months later, if a cinematographer was not on hand recording the actions of the cast? The time has not come as vet when the movements of the players could be relayed through the air to the screen in Goshen, much less delaying the relaying several months which ordinarily would intervene before the Goshenites would view such dramatics at their theater. It is natural to suppose, then, that when a banner is stretched across Hollywood's Vine street bearing the legend, "The people who make Paramount pictures welcome those who sell them," the cinematographer is included among "the people who make them, etc." The banner in question, of course, alluded to the "convention," where according to no less an authority than Jesse L. Lasky, the Paramount distributors, "those who sell them," were to actually see how pictures were made. Now the chief event of these chummy procedings between the "sellers" and the "makers" was the banquet, held in the redwood set of Cecil De Mille's current production, so that all could "get together"—according to the liberal publicity propaganda which attended the "convention." But were the Lasky cinematographers as a body invited to the banquet, the banquet of the makers and the sellers? They were not. It may be, however, that the Paramount outfit has a way of recording their productions in celluloid by magic, without a cinematographer, but we doubt it.



View of Newman-Sinclair Camera With Iris and Dissolving Front Attachments

English Turn To Camera Structure

News from London tells of new British camera; details and specifications are revealed.

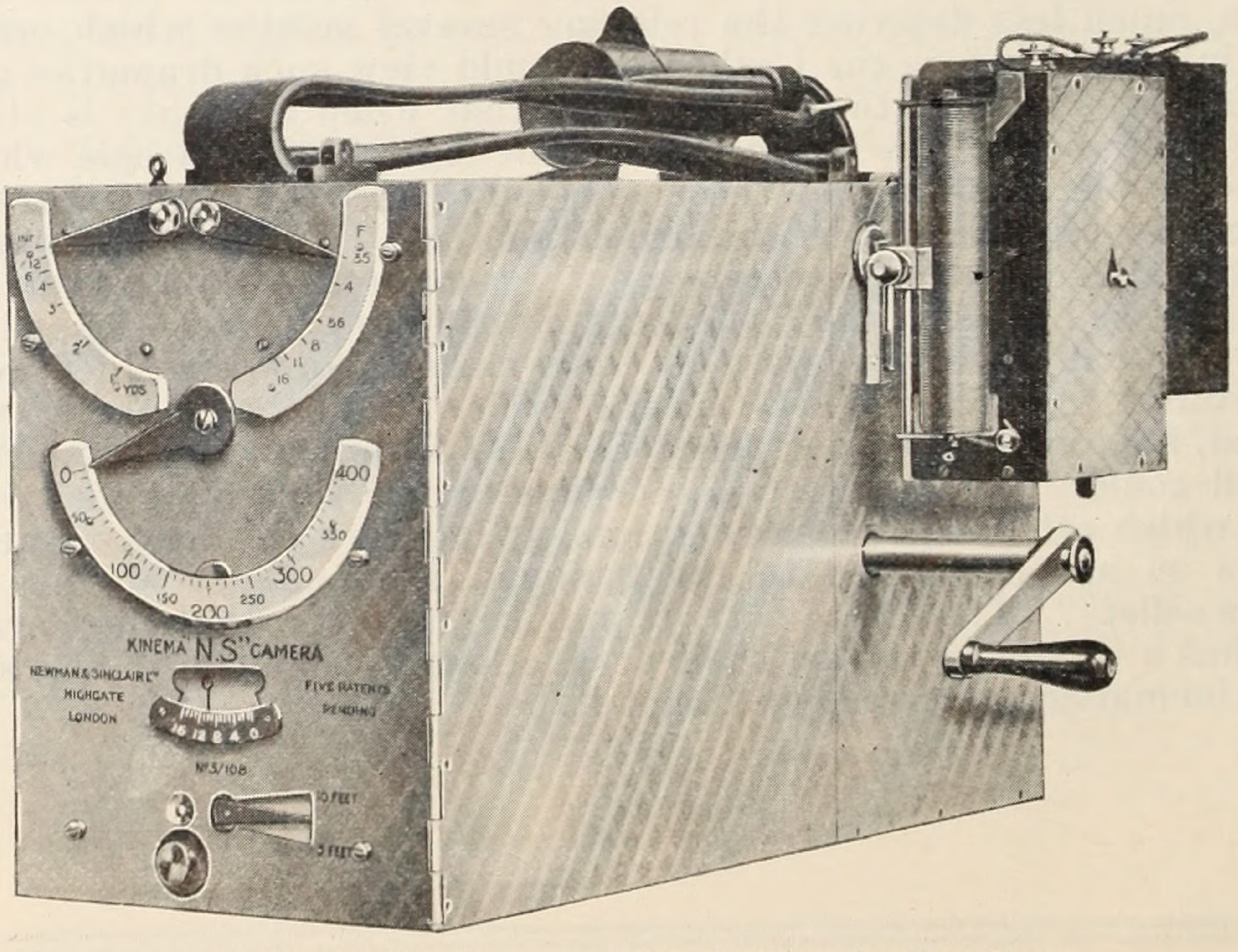
News from London carries information of a new motion picture camera put on the market in England and gives an insight into the progress of camera structure in that country.

The camera in question is the "Newman Sinclair," Number Three, manufactured by James A. Sinclair and Company, Ltd., of London. The camera body is constructed from a composition alloy, which, it is said, is as light as aluminium and non-heat absorbent.

When not in use, the reflex magnifying eye-piece, the camera screws, and the handle may be kept within the camera itself. The normal speed of the driving handle—two turns registering 16 pictures per second—may be graduated in proportion to the gearing up of the handle.

Threading

The size of the camera body is 14 by 5¾ by 8 inches, including two film boxes, finder and focusing eyepiece. The weight with tripod is 30 pounds. Arranged side by side, the film boxes have a capacity of 400 feet of film. In threading, the film is brought from the feed through a metal channel to the first sprocket. With turning of the handle, film is then conveyed through another and similar channel which turns it completely around, from which position film is tucked in the top of the camera gate. A driving hook propels the film through still another channel and to the sprocket, over which it passes, and is in a position to enter the box and to be attached to the take-up center.



Newman-Sinclair Camera With Battery in Position

Levers In Rear

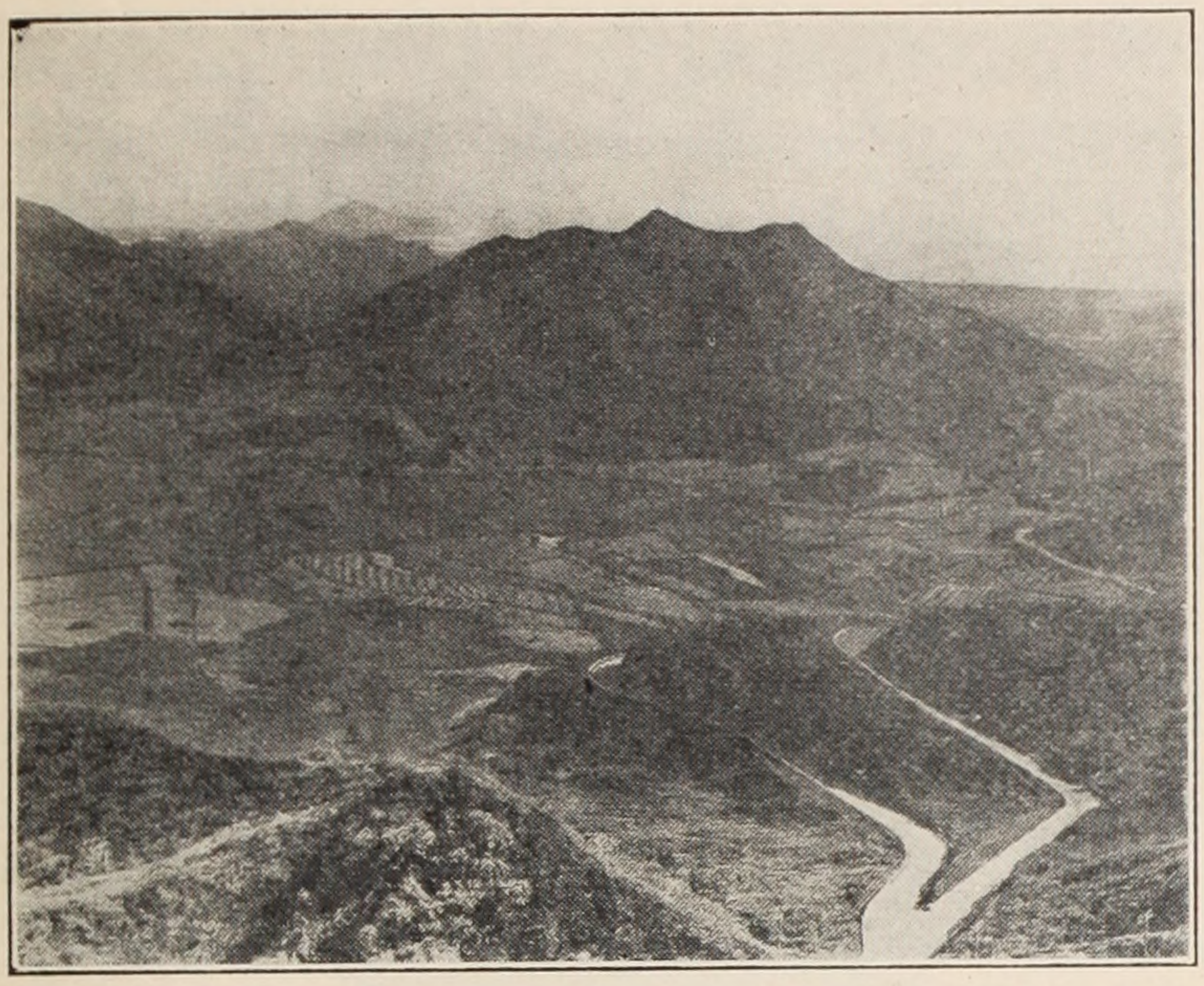
The lenses supplied with the outfit are mounted on interchangeable fittings, which may be detached with one hand. Focusing of two and three-inch lenses is governed by a lever which, located on the back of the camera, indicates the scale.

The fade-out mechanism is operated by a shutter, and is controlled by a lever, directly under the indicating lever on the back of the camera.

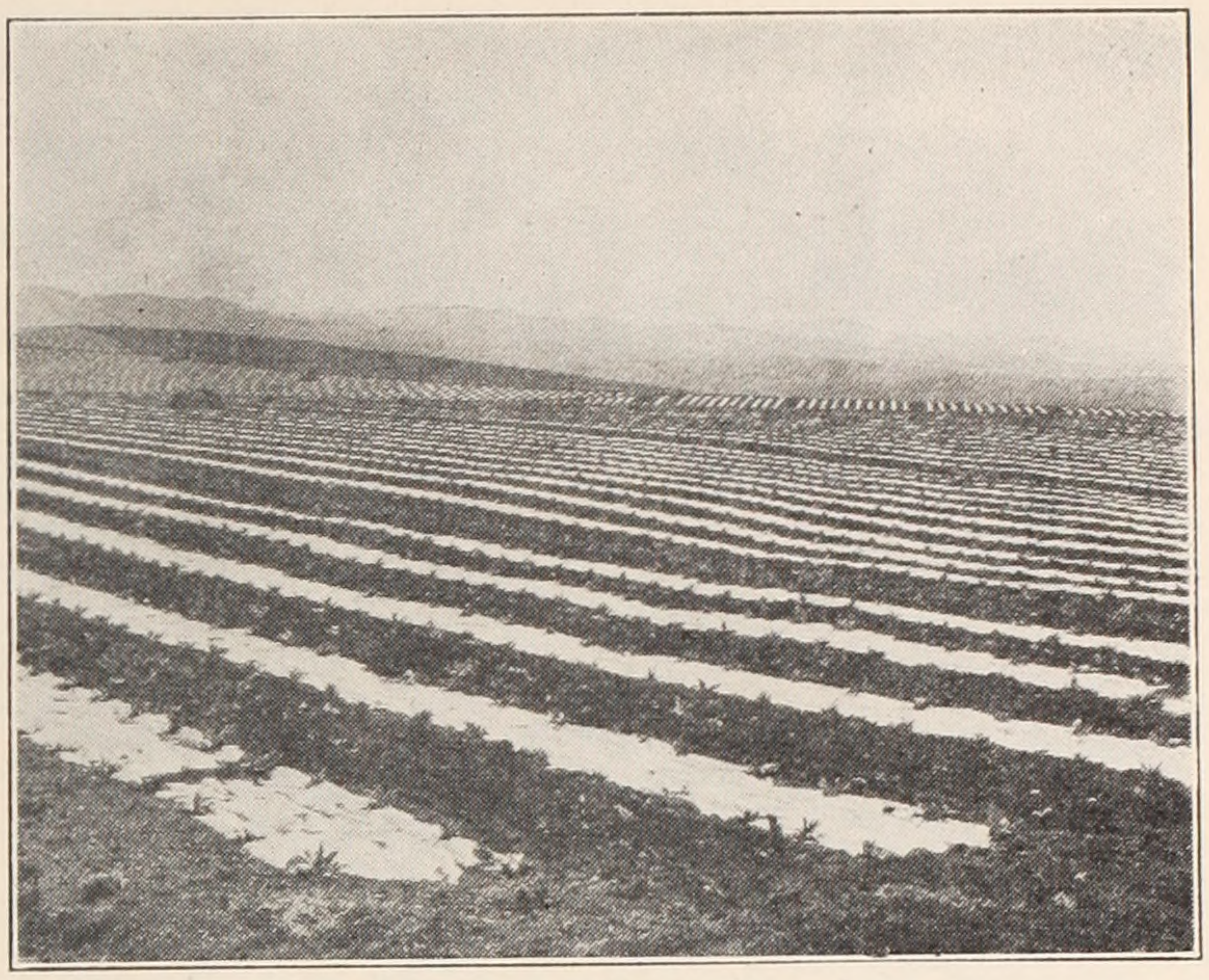
A direct view finder is fitted to the camera top and may be removed for packing.

Film may be driven either forward or backward. The controling apparatus is placed between the two boxes

(Continued on Page 24)



Birdseye View of Hawaiian Pineapple Field, with Strips of Oil Paper Stretched Between Rows to Protect Plants.



Close-up of Same Field. An Example of Hawaiian Pictorial Beauty. Photographs by Jackson Rose, A. S. C.

How Cameras Act in Honolulu

By Jackson Rose, A. S. C.

Useful information given on effect of climate and sun on cinematography in the Hawaiian Islands.

Honolulu will furnish surprises to any one on his first visit there; especially will it provide surprises to the cinematographer.

The popular conception of Honolulu, whether we realize it or not and which may to a great degree expose how sentimental we really are, is that it is a city where grass huts are the predominating type of architecture and where hula maidens, clad in grass skirts, stroll up and down romantic and shady lanes playing love melodies on ukeleles Whether or not we have a faint idea that there must be some modern features to Honolulu, our general thoughts savor of the romance and the land-of-love influence.

About Honolulu

My surprise may be appreciated, then, when I discovered Honolulu to be a thriving American-like city. In fact, if you would be deposited suddenly in the downtown district of Honolulu without knowing your surroundings and without any one telling you where you were, you, no doubt, would think that you were in a typical city of the Middle West.

It is claimed that the population of Honolulu is about 75,000, with the Japanese far in the lead; next come Hawaiians, Chinese, Portugese, Americans, Koreans and Filipinos —it certainly is the melting pot of the Pacific. Except for the fact that most of the natives are dark-skinned and nearly all of the Japs and Chinese wear their native costumes, a large part of the populace, wearing the regular styles of American clothes, appear as if they were inhabitants of any of the cities in the states. The Chinese and Japanese women wear kimonos and go barefoot with their children tied to their backs, just as in Japan or China. It is interesting to note that Hawaii is well advanced in educational matters, having everything from private kindergartens to the public University of Hawaii. The laws covering attendance up to the age of 14 are very rigid; in 1918 the attendance percentage was 94 per cent, which is higher than the average in the United States. There are two daily newspapers in Honolulu, giving all the latest news, local as well as foreign. And all this in a primitive city!

FOR HONOLULU EVENING WEAR?

Jackson Rose Serenading Hula Maidens?

What the Cinematographer Meets

Such surprise, call it disillusion if you will, will almost without exception greet the average person when he first sets foot in Honolulu. But the cinematographer is destined for even greater surprises.

On first arriving in Honolulu, as a cinematographer naturally does on entering strange territory, I began to make observations of all conditions which could possibly affect camera work, making a mental note of everything that I saw. The sun seemed to be very bright. Surely this would be a great aid to filming. I noticed deep shadows, naturally caused by the brightness of the sun, and I began to be thankful for having such a generous sun to preside over my work.

Makes Tests

While I could see nothing which would affect filming differently from the results obtained in Southern California, I obeyed my experience and launched on a series of tests of various kinds.

Then it appeared as if something were surely wrong.

There was a bright sun shining, to be sure, but where was the sharpness to be expected in the film? It was absent. Where were the deep contrasts of the lights and shadows which I had anticipated? Instead of sparkling, the results seemed flat. Surely there must have been something the matter with my tests.

So the tests were made again.

But the same effects resulted. It became apparent that the actinic value of the sun, bright though it seems, is not half that of the same sun when it shines over Hollywood. It was another case of disillusion just as we were disillusionized by the appearance of the hula girls, who romantically are famous the world around for their beauty, but who in reality are very ordinary looking individuals after all. I do not mean to imply that we were disappointed in the least by Honolulu and the islands; far from it—we viewed scenes there unparalleled in their beauty.

Sun One-Half Weaker, Photographically

Since the sun was only one-half as strong

How the Celebrated Hula Girls Really Appear in Their Native Haunts. Jackson Rose, A. S. C., at Camera.

photographically as it ordinarily is in Hollywood, the necessary steps had to be taken to make up for the deficiency. That was simply to make the exposure of all the scenes shot in Honolulu twice as great as the exposure required in Hollywood. I found myself continually trying to expose at the rate needed in Hollywood and it was with difficulty that I swung into the new environment.

Night Changes Are Treacherous

My experience has proved that the cinematographer who shoots in Honolulu must exercise exceedingly care in changing film at night. After the sun sets and night falls it becomes very damp, so damp in fact that you can virtually "feel" the atmosphere.

This dampness, which has peculiarities entirely of its own, has its effect on film. The cinematographer encounters the danger of the moisture entering the "cans" and causing the film to deteriorate if it is to be confined any length of time. This moisture, sealed within the containers, will undoubtedly age the film and cause it to become splotchy. Film reacts to the moisture by becoming very limp. The solution to the problem is simple enough—film must be changed during the day or in a darkroom from which the moisture has been expelled.

There was a wealth of native material which fitted in admirably with the piece that I was shooting—a Bunny Hare travelogue with Colin Kenny as leading man and "Scotty" Cleethorpe as director.

Zebra Fields

Once I climbed a mountain of about 1200 feet elevation. All about, beginning approximately half a mile away, acres and acres of something white, in strips, gleamed in the sun. I could not distinguish what it was.

I descended the mountain and discovered that the "white" which had intrigued me was oil paper which, in strips yards in length continued for miles, covered the young pineapple plants, protecting them from the sun and insects and holding the moisture in the ground. The paper is permitted to remain until it deteriorates by which time the plants have become sufficiently hardy to take care of themselves, so to speak. You can imagine how these miles and miles of paper strips look on the screen. The pineapple they raise is the best that is to be had anywhere—large, juicy and very tasty fruit that brings top price on American market.

We recorded the principal native occupations and customs and in doing so I naturally made scenes of the important industry of rice raising. The rice, of course, is planted in fields which are submerged under several inches of water. Horses or mules are not used for the cultivation of such fields.

"Where Cantaloupes Grow on Trees." "Papia," Native Fruit, Closely Resembling the Cantaloupe.

Bluffed by Buffalo

Water buffaloes are the beasts of burden. Naturally I set out to shoot a water buffalo. Out in the country I singled one out. He was a vicious-looking animal. One gore of his horns and I—well, the cinematographer, always exposed to danger, must, for his own welfare, learn to be duly careful whenever possible. Not forgetting my instincts, I began shooting the animal at a distance of thirty feet or so. He didn't enter any serious objections so I gradually advanced to twenty feet, then to fifteen and finally to twelve. I felt a bit proud of myself for daring to go so close. I stopped shooting and backed cautiously away. I did not take my eyes off the beast as I packed my camera case.

After All the Caution

Suddenly a Jap lad of eight or ten cut into my gaze, pulled a short chain from underneath the water, mounted the vicious buffalo nonchalantly and rode him down the field.

Sugar cane is the chief product of Honolulu. In the surrounding country you see hundreds of acres of cane. Japs are used to cut the sugar cane and it is a common sight to see 30 or 40 Japanese women in one field cutting and gathering cane. It is sent to a sugar mill, where it is chopped up and pressed, taking the molasses out, then put through other processes to get the sugar—which, raw, is sent to the United States for refinement

There is much fishing done there, especially by the Japs, who wade out in the shallow water and throw nets which trap the fish. Many different varieties are to be found here. They have the most gorgeous colors imaginable. Many Japs eat the raw fish, which is claimed by authorities, is the reason that the Japs are susceptible to leprosy. On the Island Molokai, near Oahu, is situated the leper colony where they send most of these people.

Rich in Sun Scenes

The cinematoprapher who desires gorgeous sunet and sunrise scenes will find his ideal in Honolulu. I admit frankly that they are the most wonderful I have ever seen. The sunsets and sunrises offer splendid opportunity for the use of filters, but the person who would use them should be sure to have full equipment of color filters in his kit for supplies cannot be bought there. Filters also may be used very well in filming the brightly colored native plants and trees.

The weather in Honolulu is wonderful, always warm but not hot, even in the summer time. It is claimed that they only use 30 degrees of the thermometer, from 60 to 90, and that the temperature of water around the islands never changes more than 15 degrees. The water is very clear

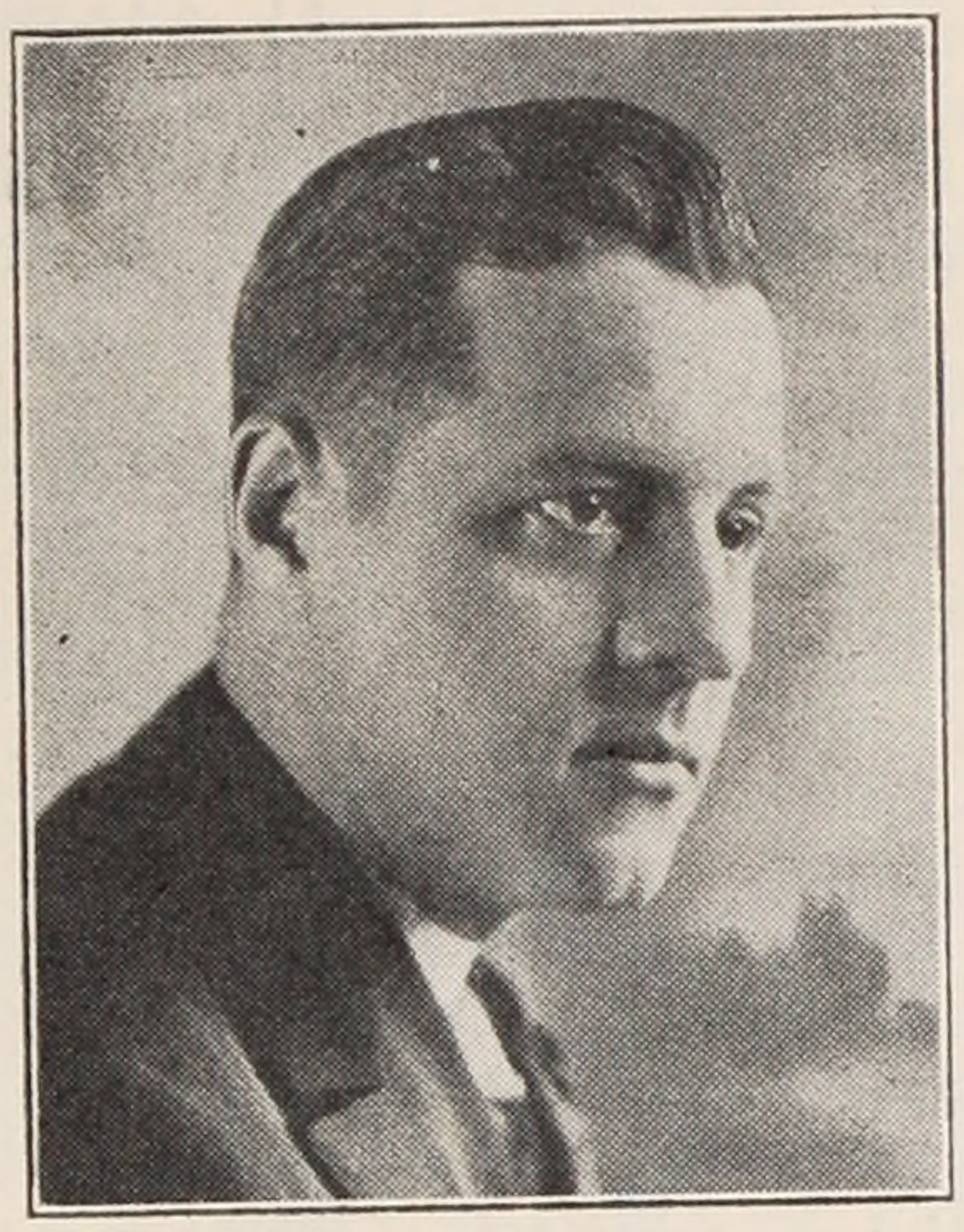
(Continued on Page Twenty-four)

Rothacker Outlines English, French, German Film Affairs

Prestige of cinematographer mounting throughout world, Rothacker states on return from Europe.

By Foster Goss

French and German exhibitors worried over heavy taxation. ¶ American technician universally respected.



—Evans, L. A., Photo
Watterson R. Rothacker

Basing his belief on observations made during several months' tour in Europe, Watterson R. Rothacker, on his return to the United States, declares, after further observing conditions in the East and the Middle West, that the prestige of the cinematographer is increasing wherever motion pictures are made or shown throughout the world.

"The truth is being realized," according to Rothacker, "that if a motion picture is to be successful, the cinematographer must be an artist just as the director or members of the cast must. The idea that one person alone can make a successful motion picture is pure buncombe. While I was in Europe I spoke to a dozen different producers, all of them men of ability, who were of the same mind as regards the cinematographer—that his ability and artistry must be recognized and encouraged if maximum results are to be attained in the finished production."

Technical Man Appreciated

Rothacker visited England, France, Germany and Belgium. In all these countries, the laboratory and producing magnate states, the motion picture technical man is very highly appreciated. That he is not regarded as matter-of-fact as in this country, obviously is due to the fact that technical development in Europe straggles, on account of the war, four or five years behind that in the United States. Hence the technical man, who is at all able, is held in esteem.

This gap in progress, however, has whetted the appetite for learning among the foreign technicians who are seeking to bridge the rift by constant application and study. Particular attention is being devoted to cinema research by the Gaumont organization, which maintains in Paris a laboratory and a corps of workers who are conducting experiments along many lines. One of the results of these research efforts is what is said to be a near-perfection of color photography, examples of which Rothacker was privileged to view at a private showing in the Gaumont plant in Paris. The colors in this exhibition were very well placed and registered well.

American Cinematographer Respected

The foreign technician and cinematographer recognizes and respects the superiority of his colleague in the United States and for that reason, according to Rothacker, an immediate invasion of the American motion picture field by foreign workers is improbable, notwithstanding the fact that the instability of conditions in various parts of Europe naturally would tend to make them desirous of improving their lot. American technique is considered as the criterion and it is after these standards that foreign ambitions are patterned at present.

"As a body," Rothacker said, "the cinematographers and the technical men of the United States are head over heels in advance of those in Europe. I do not mean, however, that there are no able cinematographers and technical men in Europe at all. In France especially, there are a number of very able cinematographers."

The three outstanding studios in the countries visited by him are, in Rothacker's opinion, that of Famous Players-Lasky in London, that of Gaumont in Paris and the "Efa" in Berlin.

"The Famous Players-Lasky plant," said Rothacker, "is modernly equipped and splendidly lighted; Albert Kaufman and Major Bell are responsible for the lighting installation. With its research department, the Gaumont studio is a fine example of the efforts that are being made toward technical progress in Europe. Its lighting provisions also are very good. The Efa has just been finished in Berlin. It is located right in the heart of the city and is the outstanding studio there now.

German Affairs

"Motion picture affairs," he continued, "are very unsettled in Germany at present. The burning question there is whether Germany is going to live as a nation rather than how successful its motion pictures are going to be. The German exhibitors are complaining bitterly against the heavy taxes which are being levied on them. They claim that they will be unable to operate any longer if the tax burden continues. Then, too, the uncertainty of the money situation affects the German exhibitor as it does any other business in that country. The departure of Pola Negri and Lubitsch has left German producers with practically no celebrities.

The effect of the fluctuation of German money, as well as that in other countries similarly affected, is plain. At the beginning of the week, the exhibitor may set admission prices to prevail according to the rent he has paid for the print. Before the week has passed, the national money may have reached a new low level so that the exhibitor must abruptly raise admission prices, which tends to antagonize the patron even though the situation is understood, or lose money on the engagement. No doubt some exhibitors forestall losses and price changes by placing their prices above the hazard of loss whenever a new run is begun.

Taxes Heavy in France, Too

French exhibitors, Rothacker stated, likewise are protesting the heavy taxes which have been apportioned to their enterprises. They also threaten to close their houses down entirely if conditions are not alleviated. However, Raymond Gaumont was mentioned as authority for the statement that his organization plans to increase production activities.

American Predominance Conceded

"Conditions in England," Rothacker explained, "are better than in France or Germany. England knows that on an average American productions are better than English motion pictures. The English, however, have the ambition, which is readily understandable, to make pictures which can compete with American films in England. From everything that I have seen, the English have received the American product very graciously. They do not harbor any ani-

(Continued on Page Twenty-two)

Graininess In Motion Picture Positives and Negatives

Continued from last month.—Final installment lists exhaustive experiments conducted by Eastman experts.

By Arthur C. Hardy and Loyd A. Jones

Influence of winter and summer conditions is considered. From transactions of Society of Motion Picture Engineers.

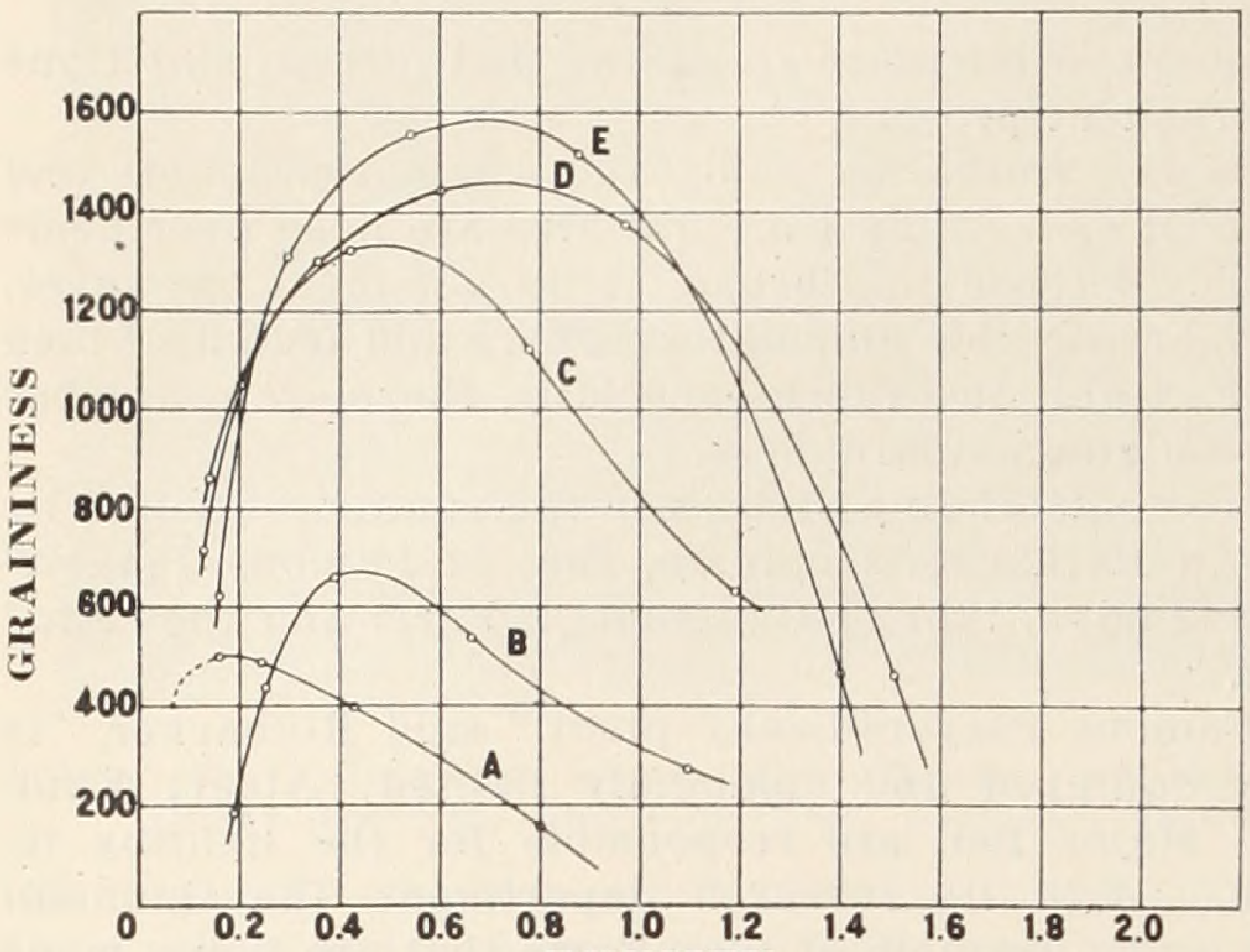


Figure 6—Curves Showing the Variation of Graininess with Exposure.

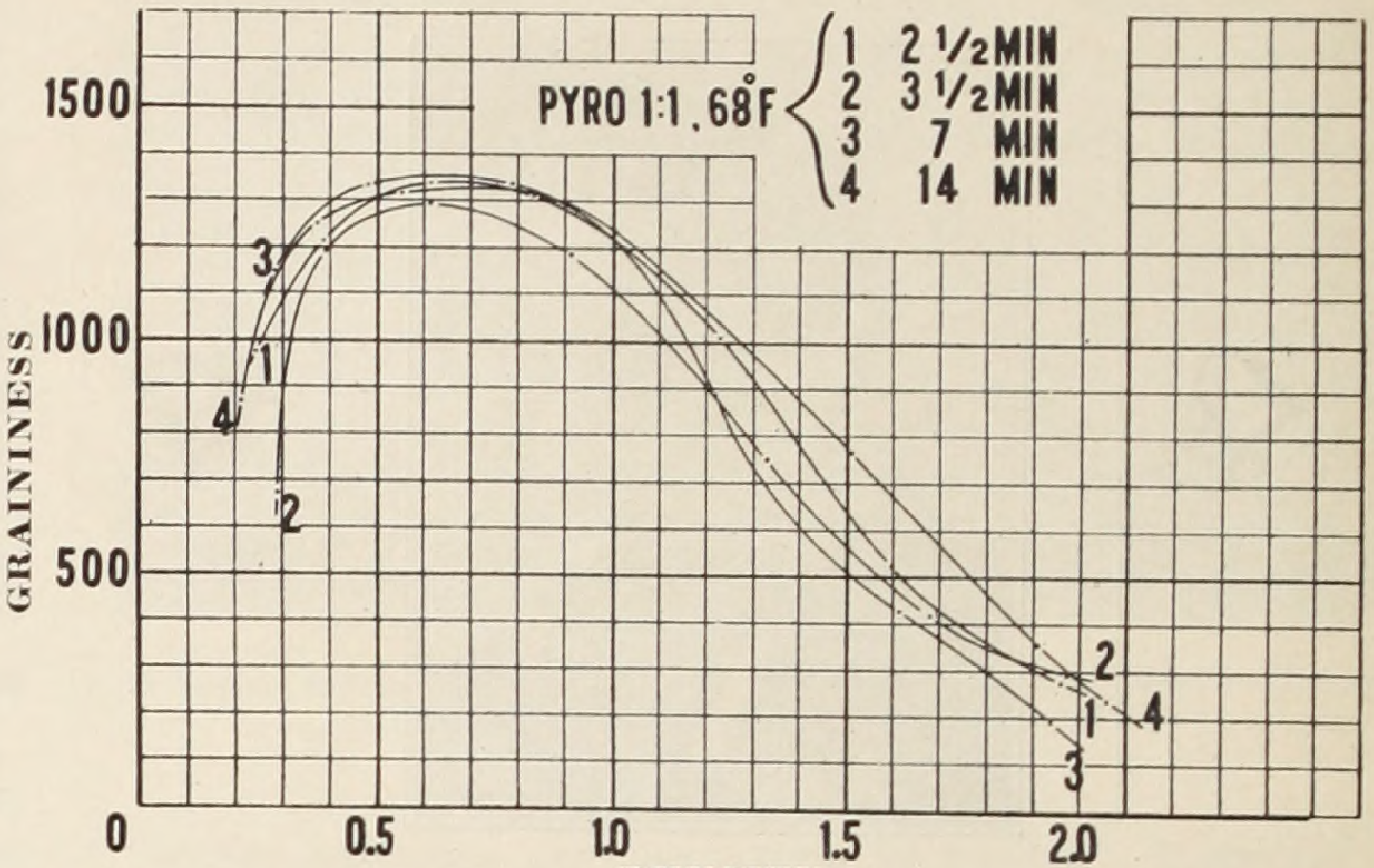


Figure 7—Curves Showing the Effect of Time of Development Upon Graininess.

The latitude of Eastman Cine Negative material is so great that with a subject of average contrast range, the exposure can be varied over rather wide limits without sacrificing the quality of the print. It was, therefore, thought desirable to determine the effect of altering the exposure of the negative on the graininess of the resulting print. Consequently, a sensitometric strip on cine negative material was prepared having a very low range of densities. It was then assumed that the average subject which is photographed by the motion picture camera has a contrast range between the highest and lowest light in the picture area of 32 to 1. This range corresponds to six steps of the sensitometric strip. Prints were, therefore, made on Eastman Cine Positive film which would include just six steps of the negative sensitometric strip within the range of positive densities which can be projected. Thus, by altering the printing time, positives were obtained which simulated exactly the effect of giving different exposures to the negative. The prints were practically identical in density at corresponding steps and one print could not be distinguished from another even on very careful examination.

Subjective Factor

The belief seems to be prevalent among photographers that under-exposure is frequently the cause of excessive graininess. This opinion may result from the judgment of graininess being based upon the visual appearance of the negative. At this point it should be again emphasized that the term "graininess" is a subjective factor and is the visual evaluation of the lack of homogeneity in the photographic deposit. Our measurements have shown that the maximum graininess in a positive does not occur in that area of the positive which is printed from the area of the negative having a maximum graininess. It is probable that in cases of under-exposure (by this term is meant an exposure less than the minimum exposure referred to in this paper) the tones of greatest interest which usually occur in the brighter half-tones of the object have been moved on to the portion of the graininess density curve where maximum negative graininess occurs. It is possible, therefore, that this is the foundation for the popular belief that under-exposure results in excessive graininess. The measurements reported in this paper have been made so carefully and repeated so many times that the authors feel very confident that the findings are reliable and according to these results the minimum negative exposure which can be used and at the same time satisfactorily render the tonal scale of the object will result in the minimum graininess of the positive printed therefrom.

Effect Is Investigated

The effect of the time of development of the negative was then investigated in the following manner: A number of pieces of cine negative film of the same emlusion number were given identical exposures in the sensitometer. These strips were then developed for different lengths of time in the same developing solution. This caused a difference in the contrast of the negatives. Prints were then made on cine positive material, compensating for the difference in contrast in the negative by altering the time of development of the positive so that the prints made from the different negatives were exactly alike in appearance.

The graininess of each step of the strips was then determined with the graininess apparatus and the results are shown in Fig. 7. It will be noticed that the curves differ by only a little more than the probable error in the method of measuring graininess and that it can therefore be safely said that the graininess of the resulting positive is not affected by the time of development of the negative from which it is printed. Within the limits for which correct tone rendering is possible, it makes no difference in the final positive whether the negative is developed to a high contrast and the positive to a correspondingly low contrast or whether the opposite conditions obtain.

By a very similar procedure, the effect of the concentration of the developing solution used to develop the negative was determined. In this case the negatives were developed in solutions of different concentrations for sufficient times to produce the same contrast. Identical prints were then made and examined in the graininess apparatus. It was found that the graininess of the positives increased as the solution in which the negative was developed was diluted. The effect existed for several different developers which were tried, but the increase is very slight for concentrations which would ordinarily be used in practice.

The results are shown in Fig. 6. Curve A is the graininess curve plotted as a function of the density of the positive print for the case of minimum exposure of the negative. The minimum exposure which the negative can be given is, theoretically, the one which records the lowest light of the picture area on the lower end of the straight line portion of the Hurther and Driffield characteristic curve of the negative material. In practice, however, it is possible to use a somewhat shorter exposure than this without seriously affecting the tone reproduction in the shadows. This involves the use of the so-called "under-exposure" region of the characteristic curve of the negative material.

Practical Advantages

While this departs from the theoretical requirements for the exact reproduction of the tonal scale, it has certain graininess. Curve A represents, therefore, the minimum exposure in the sense that a shorter exposure would result in a sacrifice of the proper rendering of tone values in the lower lights of the picture area. The effect on the graininess of the resulting positive of increasing the exposure of the negative over this minimum exposure is represented in the other curves in Fig. 6. The curve B shows the effect of increasing the exposure about 1½ times over the minimum; Curve C, 3 times; Curve D, 6 times, and Curve E, 10 times. An increase of ten times was found to be about the limit with the arbitrary contrast range selected. It will be noted that the increase of exposure of the negative leads to a marked increase in the graininess of the resulting positive. The increase is the most marked at first and with the longer exposures increases very little. This shows the importance of using always the shortest possible exposure of the negative when it is desired to minimize the effect of graininess in the positive. It might be added that all of these tests were performed on photographic materials of the same emulsion number throughout any series of tests. Likewise, a single solution developer was used which was made up in sufficient quantity to last throughout an entire test. The experiment has been repeated with other developers and other emulsions and similiar results obtained.

In fact, for practical purposes, the graininess can be said to be independent of the concentration of the solution in which the negative is developed.

Developing Agents Examined

A large number of developing agents were investigated in the hope that one of them would be found to give very much reduced graininess. Unfortunately, such was not the case. With one or two exceptions the graininess of all the positives made from negatives developed in the different solutions was very nearly the same. Of the common developing agents, a concentrated pyro solution was found to give slightly less than average graininess and the Eastman Process developer slightly more. However, the differences are so small that one developer is not to be preferred to another for this reason alone.

It has often been stated that the fixing, washing and drying conditions play a large part in determining the graininess. The most common claim is that the warm moist atmosphere which is encountered in the tropics and at times during the summer months in this latitude is responsible for a large increase in graininess. This point was investigated by exposing and developing a photographic material and then cutting it into two or more strips for the fixing, washing and drying process.

Winter and Summer Conditions

Strips were thus prepared under what may be called "winter" conditions, where the fixing and washing was carried out in baths at a temperature averaging about 45 degrees F. They were then dried in air at 65 degrees F. aided by an electric fan, so that the drying was completed in less than half an hour in every case. Other strips were prepared under "summer" conditions, where the washing and fixing was done in solutions at approximately 80 degrees F. and the strips were then placed in a box maintained at a temperature above 90 degrees and at a high relative humidity which would prolong the dry process to 24 hours or more.

Comparison of Strips

When the strips prepared under the two conditions were compared, it was found that the slow drying in the warm

In line with its steady growth and expansion, the American Cinematographer is seeking representatives in the "key" cities throughout the country. Those who meet qualifications will be selected.

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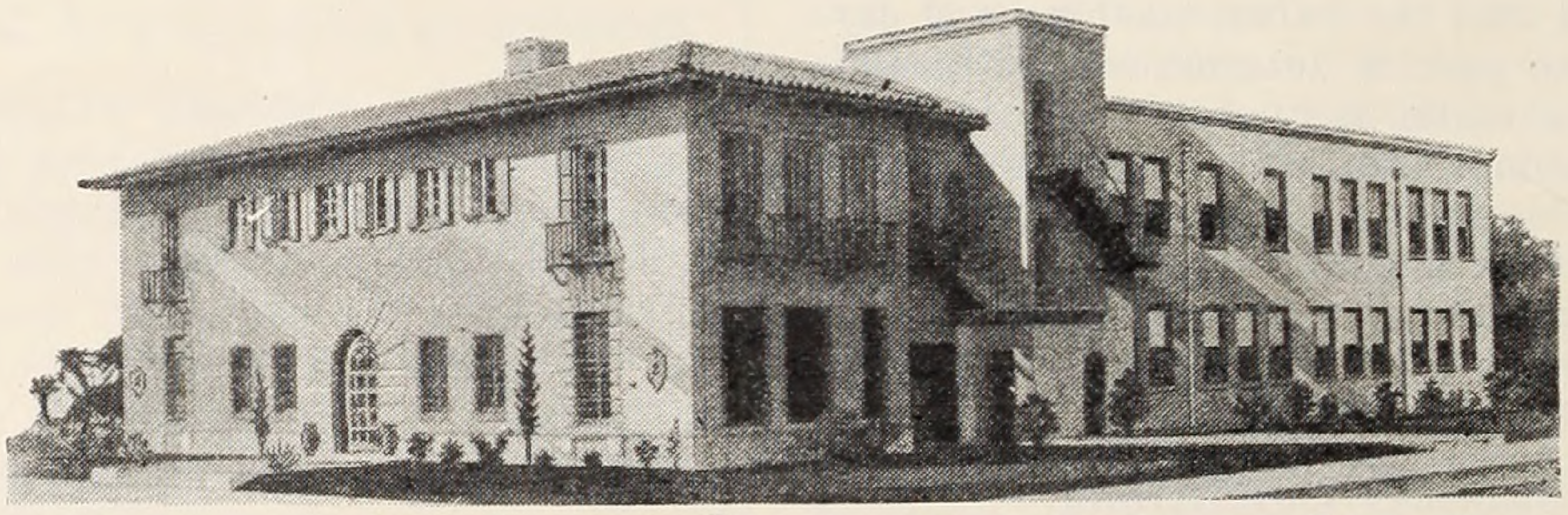
SUCCESS INSURANCE

Without pigments and canvas Rembrandt never could have written his name so indelibly in history. His medium of expression was in applying paint to canvas. Without this the oblivion of passing years would have swallowed up his name. Your medium of expression, cinematographers, is the chemical action of light on certain silver salts. Unfortunately you can't follow your work through to the screen. You must depend upon the laboratory to bring out the artistry you have placed on film.

Your work's artistic excellence depends upon laboratory skill and co-operation. That's why every cinematographer needs the camera-to-screen service of STANDARD FILM LABORATORIES. It's the best success insurance there is. Some of the biggest producers in the film industry realize this. They know we are helping you men find the fullest expression of your art. If you are not profiting by our superior service, you and your producer are the losers.



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atmosphere had caused the dried down densities to be higher than in the case of the rapid drying under the simulated winter conditions. This was particularly true at the higher densities which results in an increase in the contrast as well. When graininess measurements were made, it was found that there were slight differences in the graininess for the same step but that when the graininess was plotted as a function of the density of the step, these differences disappeared. Thus, it appears from these tests that the graininess is not affected by the fixing, washing or drying conditions. Tests were also made in which the fixing and washing was carried out in the same solution and the strips separated for drying at different temperatures. Again the graininess was not affected.

Possibilities and Impossibilities

It is, of course, impossible to alter the exposure of the positive over wide limits as in the case of the negative, the exposure of the positive being limited by the requirements of the projected apparatus. However, it is possible to use light of different colors in printing and this was, therefore, tried to determine the source of light which produces the minimum graininess. It was found that there was a marked decrease in graininess when ultra-violet light was used. The positive materials are not, in general, sufficiently sensitive to visible radiations other than blue and violet to make it feasible to use color filters in the printing machines to advantage. The difficulty of altering the intensity of the mercury vapor lamp, which was used as a source of ultra violet light, constitutes a serious objection to its use in commercial printing machines.

Additional Tests

Tests were also made to determine the difference in graininess resulting from the use of a specular or diffuse beam of light for printing the positive. When absolute contact was secured between the negative and positive by means of a process printing frame, the graininess was found to be somewhat reduced by printing by diffuse light, such as is obtained by placing a piece of pot-opal glass before the negative. This was also found to hold when it was tried on two different makes of automatic printing machines. However, when definition tests were made at the same time, it was found that the reduction of graininess by printing with a diffuse beam was obtained at the expense of a slight loss of definition in the printing machines in which it is impossible to secure accurate contact. It is not, therefore, considered advisable to use the diffuse beam in practice in spite of the slight decrease in graininess which it entails.

Slight Difference

The effect of the concentration of the solution in which the positive is developed was investigated and almost no change in graininess was found with the change in concentration. Many different developing solutions were also tried, but only very slight differences were found in the graininess. Curiously enough, the Eastman Process developer, which had produced the maximum graininess when used to develop the negative, produced the minimum when used to develop the positive print.

Occasionally a motion picture positive is encountered which appears to be exceedingly grainy when projected on the screen. Since no variation of the photographic technique in the laboratory produced sufficient modification of the graininess to account for this effect, it was necessary to assume that it is due to the nature of the subject. A further investigation along these lines disclosed the fact that the subjects which exhibit this abnormal graininess usually contain large picture areas which are rendered in the positive by a density lying near the maximum of the graininess-density curve.

Appearance of Seascape

For example, a seascape with large masses of clouds in the sky will usually appear very grainy in the cloud areas. If the negative has been correctly exposed, this graininess

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faithfully reproduces every tone of the negative. It carries the quality through to the screen.

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is not due to any faulty photographic technique, but rather to the fact that, with the ordinary procedure, the clouds are rendered by a density which leads to a maximum graininess. For a subject of this kind, the remedy consists in altering the exposure in printing so that the optical density of such areas may be either increased or decreased by an amount sufficient to reduce the graininess to a point where it will not be objectionable. If the printing exposure is increased, the positive will be dense and the screen brightness somewhat reduced. If carried too far, this leads to loss of detail in the shadow portions of the picture. On the other hand, if the printing exposure is decreased, the print will be too light and the tone reproduction in the higher lights of the picture area will be sacrificed.

The choice of procedure will naturally depend upon the subject. With a subject of little contrast in which light tones predominate, better results can probably be obtained by increasing the printing exposure. On the other hand, a subject of high contrast in which the dark tones predominate will usually be better rendered by the opposite procedure. While no hard and fast rule can be set down governing all such cases, it is usually possible to avoid rendering any large picture areas by a density in the region of maximum graininess.

Abnormal Graininess

This abnormal graininess is encountered in an occasional picture made in the studio. In this case also the graininess is apparent only when there are large areas of the picture rendered in a light key. When it is desired to use light tones in the setting and at the same time to minimize the graininess, the large areas of the picture should be broken up as much as possible. For example, printing a design or pattern on an otherwise bare wall will reduce the graininess considerably. In this case the attention of the optience becomes fixed on the design and the scintilation of the grains in the bare area is not so apparent. When the subject is a close-up, the brightness of the face must be so adjusted with respect to the rest of the setting that the face will appear to be white when projected. If the face of the actor is rendered by a density somewhat lower than that corresponding to a maximum graininess, the tones of the background should be so adjusted that the larger areas will have a density well above that of the maximum graininess. It will be noticed by referring to the curves given in this article that the maximum graininess occurs always at nearly the same positive density independent of the photographic procedure. Also the curve on either side of the maximum is steep, so that a small variation in density produces a large difference in the graininess. By taking advantage of this property of the photographic materials, it will usually be found possible to reduce the graininess to a point where it will not be objectionable.

Summary of Results

1. It has been found that the negative exposure in the taking camera has considerable influence on the graininess of the resulting positive print. The minimum graininess is obtained by a minimum exposure. The graininess increases continuously with increase in exposure.
2. The time of development of the negative has practically no effect on the graininess of the resulting print when the development of the print is adjusted to compensate for the differences in the contrast of the negatives.
3. The use of diluted developing solutions to develop the negative produces a slight increase in the graininess of the print. This effect can usually be ignored in practice.
4. The graininess of the print was found to be almost independent of the developing agent used to develop the negative. Practically all of the common materials, such as pyro, metol-hydro-quinone in various combinations; amidol, etc., were tried and only negligibly small differences found between them.
5. Contrary to the claims that are often made, the fixing, washing and drying conditions were found to have no

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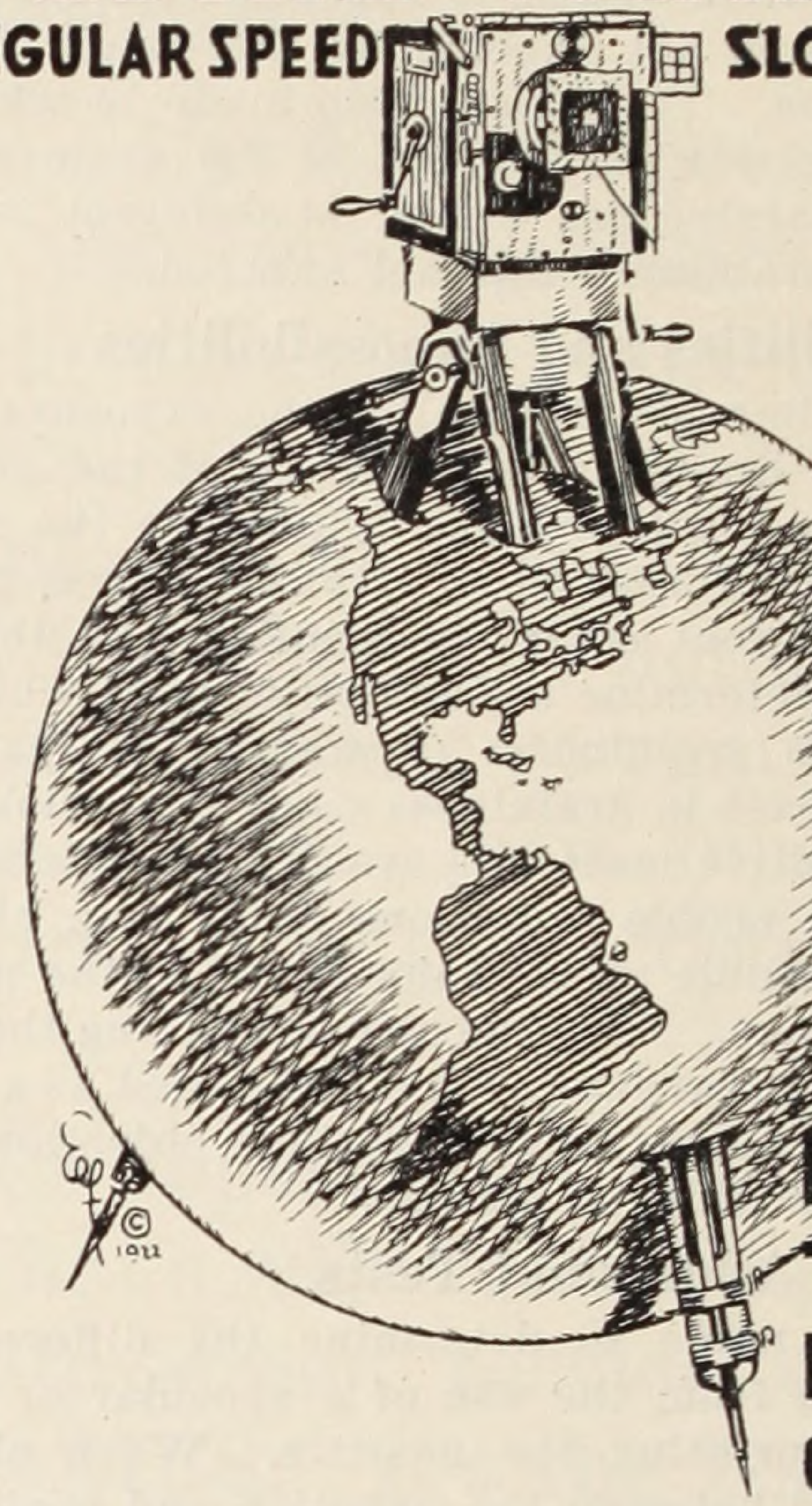
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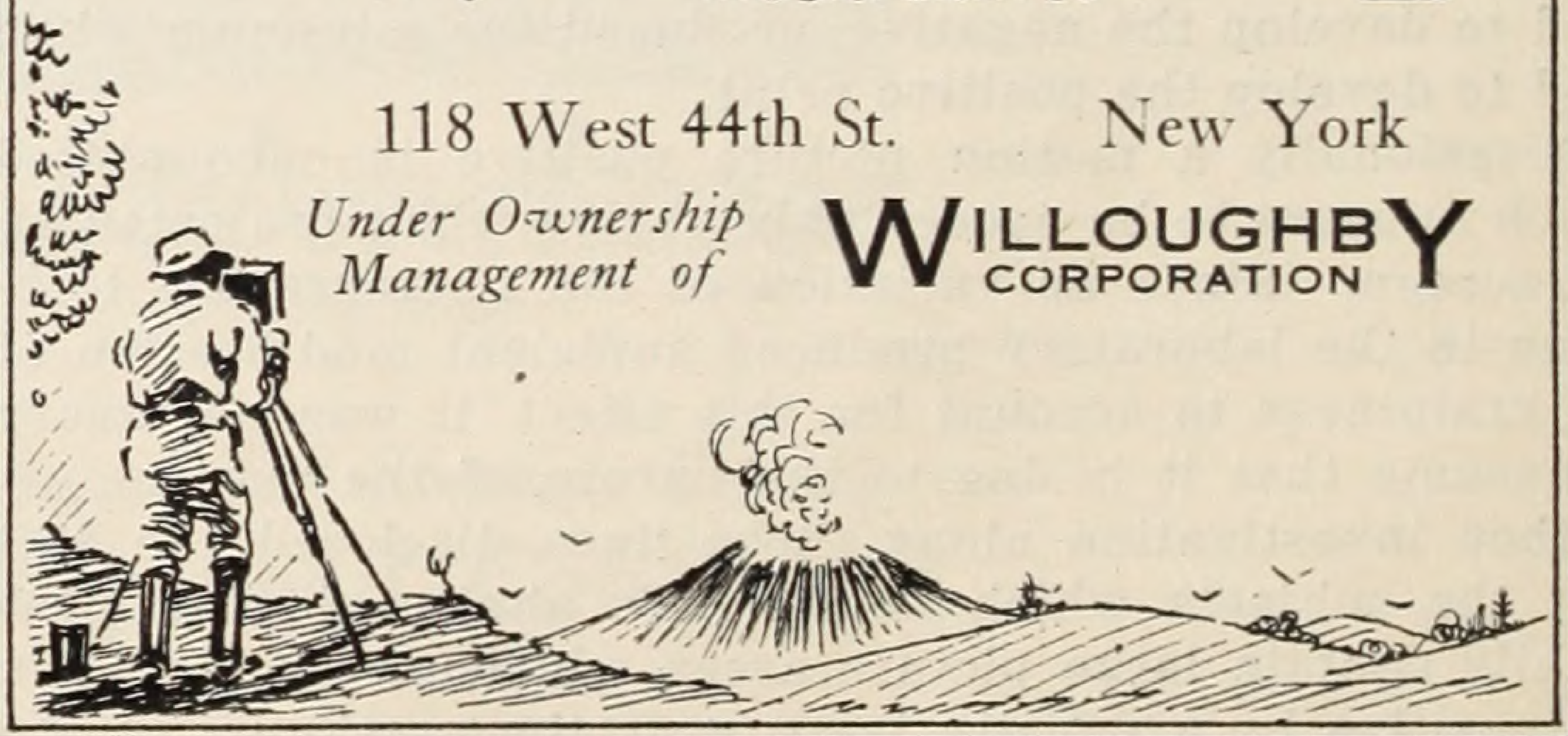

effect on graininess. The photographic materials were subjected to very severe conditions of warm solutions and slow drying in warm moist air but no increase in graininess could be measured.

6. The effect of the light used in printing on the graininess of the print was investigated. Printing by ultra-violet light was found to decrease the graininess. The graininess was found to be less when a diffuse beam of light was used in place of the usual parallel or specular beam. Practical considerations, however, make it undesirable to attempt to decrease graininess by this means.

7. The graininess of the print was found to be practically independent of the concentration or the nature of the developing agent.

8. An explanation is offered for the excessive graininess which sometimes occurs with certain types of subjects. This is probably due to the nature of the subject which requires rendering large unbroken areas by positive densities which lie near the maximum graininess. The various remedies for this condition are discussed.

Education and 'Pictures'

(Continued from page 4)

classified as such. What are the pictures doing for the home? "Let's go to the movies!" and many is the family that goes together. The mere introduction into the home of a binding force—one that might otherwise be negative—may be hailed as a blessing. Pictures are also serving the school! What fascination has come to geography, history, art, and kindred subjects through the intelligent use of films. They are finally serving the church! Whether one likes the idea of the motion picture religious service or not, still we can name a hundred churches, quite empty before the pictures taught the way of return.

Pictures Here to Stay

We have our criticisms, but we are not going to say much about them here. We don't like the everlasting representation of people of wealth as idle, empty-headed loafers and world-weary fools. We think there is too much suggestion in many films to youngsters to waywardness and crime. From the prominence given such matters in the press there is much to be said in condemnation of the personal living of many a star of the silver screen. But such are to be found in every walk of life. Perhaps there are more of them in pictures, because it is a new industry where sudden wealth and fame have come to many who have been unprepared, by education, training and culture for the enjoyment or the burden of them. These, however, will pass and their notoriety with them, but pictures have come to stay.

Something might be said in closing of the service immediately rendered by the recreation and refreshment of the films—the fretful, overworked jagged nerves becalmed, the crumpled sheet smoothed out, and the spirit of men and women of affairs reoriented by such pictures as have no other motive in education than simply to make glad.

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What Photography Means to 'Robin Hood'

(Continued from Page Eight)

Hood' is an example of what the corps of experts does in the production of a motion picture. No individual with the idea that the real super-production is a one-man affair will ever succeed, as Mr. Fairbanks has suceeded in 'Robin Hood.'

All who were affiliated in the production of 'Robin Hood,' I believe that I may say sincerely, were seeking to make a picture which would stand the test of years. It was our purpose to set a standard which would be a real standard and endure the wear of time. At any rate, the technical and cinematographic difficulties which we have succeeded in surmounting in 'Robin Hood' will serve as guidance for any one who attempts a picture on so large a scale in the future. The determination of such things alone is well worth any and all effort that we put forth."

The facts stand out, then, that as elaborately as "Robin Hood" was planned, as great as were the expenditures for its sets and talent, it could only have won a fraction of its success if it had not been for the photography with which Edeson imbued it. How would "Robin Hood" appear on the screen if it had been photographed only in a mediocre manner? How would it affect the audience if the tempo of lighting were not expertly arranged? How would the magnificent sets have shown up if subjected to bad lighting arrangements and if filmed from damaging angles?

An ace cinematographer is the answer to these questions and the answer accounts for many a twig of "Robin Hood's" laurels.

Rothacker Outlines Foreign Film Affairs

(Continued from Page Fifteen)

mosity toward the American product and have been very fair in their competition. It is only natural that they should want to be able to supply, more than they are doing now, the needs of their own market, and they are very optimistic over their prospects. No doubt they, as well as the French, plan to enter the American market if they can, just as American productions have entered their countries.

"But for the present, the English are very much concerned over getting American films released sooner in their country. It is estimated that, on an average, pictures are released seven months later in England than they are in this country. This condition probably is due to, more than anything else, their having bought so far ahead of time. Due to the personal efforts of Joe Schenck, Norma Talmadge's 'Smiling Through' and 'The Eternal Flame' were released practically simultaneous with their American premieres."

Rothacker tells of a new laboratory which, being completed in Berlin, is operated automatically by electricity throughout. Its actual operation will determine its success. It has become a custom for the cinematographer not to be given the opportunity to supervise his film when it is treated by the average European laboratory, although, Rothacker said, there are several efficient laboratories in Berlin.

In England, the average producer, distributor and exhibitor is said to regard the quality of prints made in America as vastly superior to those made in England.

Rothacker Plans

Rothacker is completing plans for the erection of a laboratory in London. It will be started and, the magnate hopes, finished in 1923. Contrary to persistent reports, he will not erect laboratories in France, Germany, Russia or elsewhere on the continent. Rothacker is president of the Rothacker-Aller laboratories in Hollywood and is the guiding genius of the Rothacker laboratories in Chicago and of the associated enterprises bearing his name in the Windy City and in New York. He is the pioneer in the production of motion pictures for industrial and other advertising.

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Comedy 'Kicks' Require Courage and Skill

(Continued from page 6)

tied around his ankle, ran up to the top wing strut. You may think this was the "kick," but you're mistaken. Have you ever seen a seaplane execute a landing at a seventy-mile-an-hour clip and see the water hit that pontoon at the end of the wing, dashing clear over the end of the lower wing? Well, that was a kick, inasmuch as the cinematographer was on the lower wing.

You have seen a row of horses come dashing down a field and just as they were about to burst out of the screen down on the audience, they vaulted and seemed to fly over the top of the screen. What they did was to leap over the head of the cinematographer who was operating the camera which he had set up in the ditch over which the horses had jumped. The kick? Well, suppose a horse should have stumbled?

Remember that scene which gives a straight front view up the center of the street with the fire engine, the police patrol and the chief's fast roadster bearing down on a wet spot in the middle of the street? The fire engine and the patrol turned completely around and the roadster shot through a small opening between them, performed a couple of springs and seemed as if it were going to jump right off the screen down into the theater, but barely skimmed over to the side by a half-inch margin—which meant that the machine missed the cinematographer who was operating the camera by a trifle more than a half inch. Was that a "kick?" Well, there were no spectators or directors behind the camera watching the scene.

Several Hundreds Miles In One Leap

You may have seen a horse jump from one cliff to another, over a gap caused by a waterfall which rushes a hundred feet below. The rock from which the horse begins his jump is that of El Capitan, in California; the rock on which he lands is that which adjoins Vernal Falls in Yosemite Valley, several hundred miles away.

The trees which are in another corner of the picture grow near Sunland.

How was it done? Merely by exposing the film eight different times and fitting the eight exposures together so that they looked like one. But what flashes on the screen in several seconds required several weeks of travel and painstaking effort on the part of the cinematographer.

You have seen the typical comedy crowd fighting and hanging on telephone wires over the traffic of a downtown street. How was it done? The cinematographer "shot" the traffic in the downtown street. The fighting was really done on wires stretched four feet over the nets and pads which were suspended ten feet above the ground in the studio.

You have seen the horse jump from the cliff into the ocean. The cliff is the rock at Chatsworth, Calif., the ocean part came from Balboa Beach, Calif. The horse, of course, did his leaping in the studio.

How to do it? Rely on the cinematographer.

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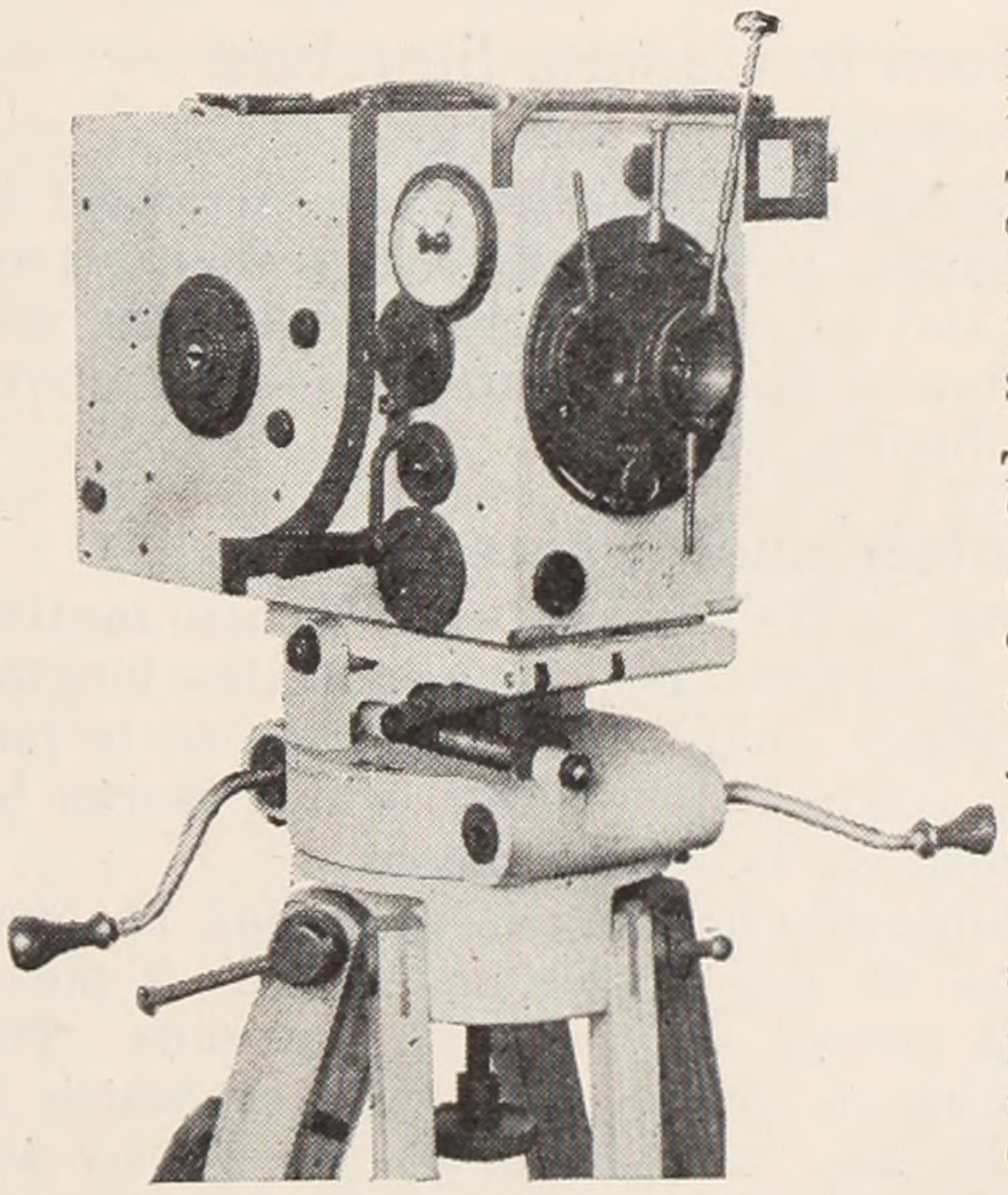

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How Cameras Act in Honolulu

(Continued from page 14.)

and the bottom can be seen at all times almost at any depth to about 75 feet.

As I say, the photographic possibilities are very good. The most beautiful scenery imaginable is there, tropical of course, but there are many mountains also.

Shooting Hours

The best time to shoot is between ten and three, because at all other times the light has hardly any photographic value and would cause under-exposure unless one is very careful and gives his negatives full time, etc. I made a sunrise scene in which I had to give about three times the exposure that I would give around Hollywood.

Generous Traction Company

We were treated royally by everyone because I think they have the idea that possibly some picture company will locate there permanently and are making special inducements for the picture people to come there. We had no trouble in holding up traffic for an hour at the time and the governor let us take all the pictures we wanted at the palace. The street car company gave us a car and crew without charge.

In Honolulu I had demonstrated to me the truth of the old saying, "This is a small old world after all." There were, at the time, three cinematographers from the States in Honolulu and each of the three were members of the American Society of Cinematographers—the other two being James Van Trees, who was shooting "The White Flower" for Paramount, and William McGann, who was shooting a Barringer production.

All of us were extremely busy and it is a fact that we never were blessed with the chance of being in the company of each other at the same time. Whenever one called at the hotel of the other, the latter would be working several miles away and so it went. It may be that the two other A. S. C. members, shooting dramatic productions, encountered conditions which I did not meet in straight photography.

English Turn to Camera Structure

(Continued from page 12.)

in the middle of the camera. The boxes are arranged so that they come in contact with the apparatus when placed in the camera and the doors are closed. A handle, one turn of which registers a single picture, is located above the regular driving handle.

Cutter and Counter

There are two scales to the counter, which is also located on the back of the camera. The upper indicates lengths of ten feet, and the lower single feet numbered one to ten. A knob on the back controls the cutter, which marks by notching the edge between two perforations.

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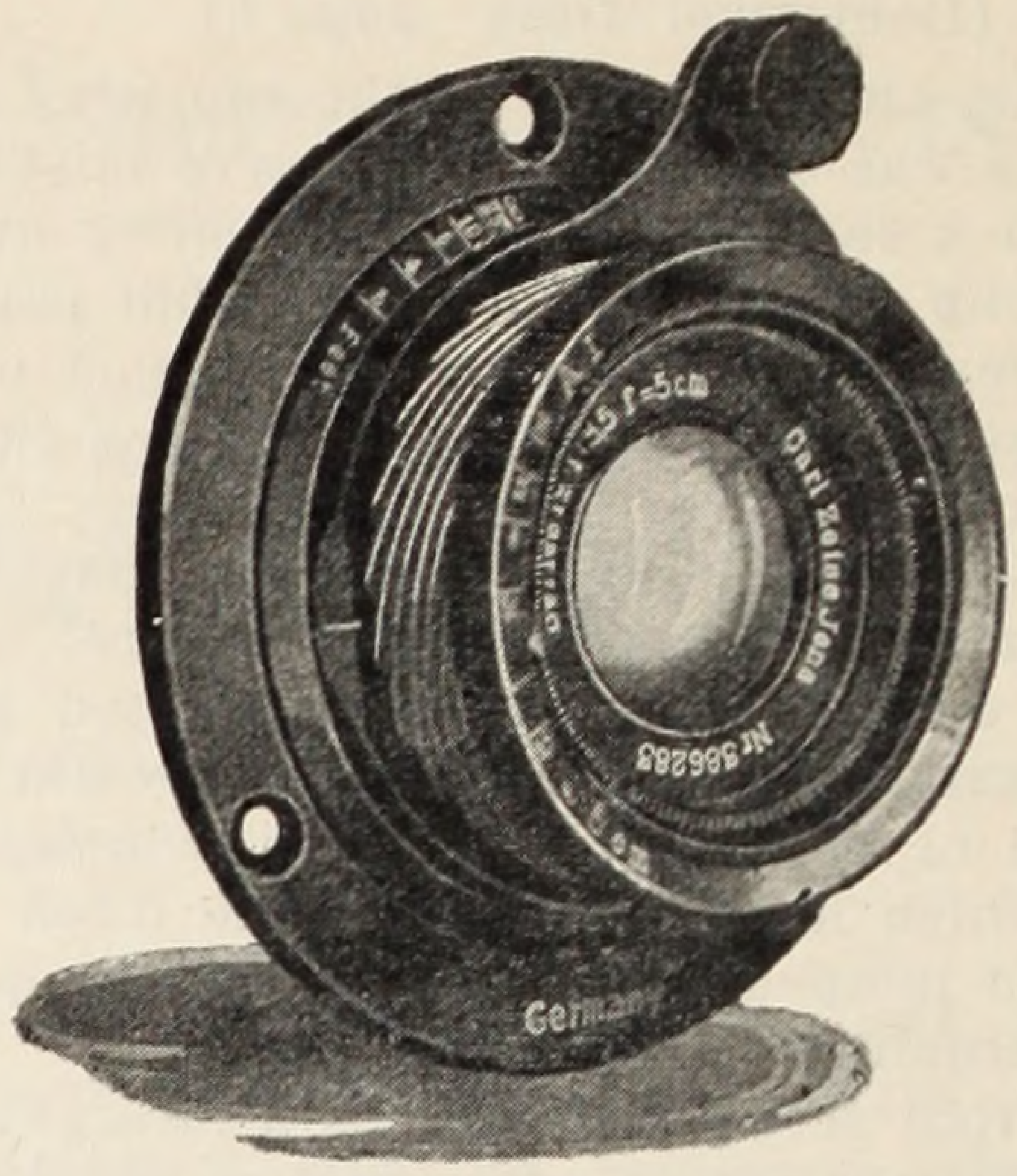

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In Cameraformia

Rudolph Berquist, A. S. C., will photograph the S.-L. (Sawyer-Lubin) production of "Your Friend and Mine" for Metro.

* * *

John Arnold, A. S. C., is finishing the photographing of "Noise in Newboro," starring Viola Dana.

* * *

Andre Barlatier, A. S. C., is filming the latest Leah Baird production.

* * *

Reggie Lyons, A. S. C., is photographing Jess Robbins' productions.

* * *

Gilbert Warrenton, A. S. C., is completing photography on "The Leopardess," starring Alice Brady, in New York.

* * *

George Barnes, A. S. C., is photographing the film version of Booth Tarkington's prize novel, "Alice Adams," directed by Rowland V. Lee and starring Florence Vidor.

* * *

James Van Trees and Charles Van Enger have been appointed to the board of governors of the American Society of Cinematographers.

* * *

Floyd Jackman, A. S. C., has finished "Michael O'Halloran," Gene Stratton Porter's first production.

* * *

It's a boy—which explains the pride of Hans Koenekamp, A. S. C. Hans hasn't decreed as yet whether or not his heir will be a cinematographer.

* * *

Homer Scott and E. B. Du Par, A. S. C. members, are shooting "The Little Church Around the Corner" for Warner brothers.

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George Schneiderman, A. S. C., has finished "Pawn Ticket 210," starring Shirley Mason.

* * *

Robert Kurrle, A. S. C., has completed Metro's "All the Brothers Were Valiant."

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"Clarence"	L. Guy Wilky, member A. S. C.
"A Tailor Made Man"	Georges Rizard and George Meehan, members A. S. C.
"The Kentucky Derby"	Victor Milner, member A. S. C.
"The Headless Horseman"	Ned Van Buren
"The Better Man Wins"	Not credited
"If I Were Queen"	Joseph J. Dubray, member A. S. C.
"Wolf Law"	Ben Kline, member A. S. C.
"The Forgotten Law"	John Stumar
"One Exciting Night"	Hendrik Sartov
"Secrets of Paris"	Harry Stradling and Edward Paul
"Till We Meet Again"	William Tuers and Philip Armand
"Wildcat Jordan"	Harry Fowler, member A. S. C.
"The Impossible Mrs. Bellew"	Alfred Gilks, member A. S. C.
"Wonders of the Sea"	R. Rescher
"Broad Daylight"	William Fildew, member A. S. C.
"Another Man's Boots"	Edward Estabrook
"Peaceful Peters"	Jack Fuqua
"Youth to Youth"	Arthur Martinelli
"Sure Fire Flint"	Billy Bitzer, Niel Sullivan and Charles Gilson
"Women Men Marry"	Roy Overbaugh, member A. S. C.
"Robin Hood"	Arthur Edeson
"Oliver Twist"	Glenn MacWilliams and Robert Martin
"Shadows"	Harry Perry, member A. S. C.
"Enter Madame"	L. William O'Connell
"The Man Who Saw Tomorrow"	Alvin Wyckoff
"Unconquered"	Not credited
"Tom Mix in Arabia"	Dan Clark
"Another Man's Shoes"	Ben Reynolds, member A. S. C.
"The Love Gambler"	Joe August
"To Have and To Hold"	Arthur Miller
"One Week of Love"	Jules Cronjager
"The Danger Point"	Ross Fisher, member A. S. C.
"The Village Blacksmith"	George Schneiderman, member A. S. C.
"Table Top Ranch"	J. Badaracco
"The Young Rajah"	James C. Van Trees, member A. S. C. (Directed by Philip E. Rosen, member A. S. C.)
"Good Men and True"	William Thornby and Robert De Grasse
"The Cowboy and the Lady"	Faxon Dean, member A. S. C.
"Shirley of the Circus"	G. O. Post
"The Lavender Bath Lady"	Victor Milner, member A. S. C.
"The Woman Who Fooled Herself"	A. Fried
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"Anna Ascends"	Gilbert Warrenton, member A. S. C.
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"Brawn of the North"	C. B. Dryer
"When the Desert Calls"	Michael Joyce
"A Broadway Madonna"	Ernest Miller
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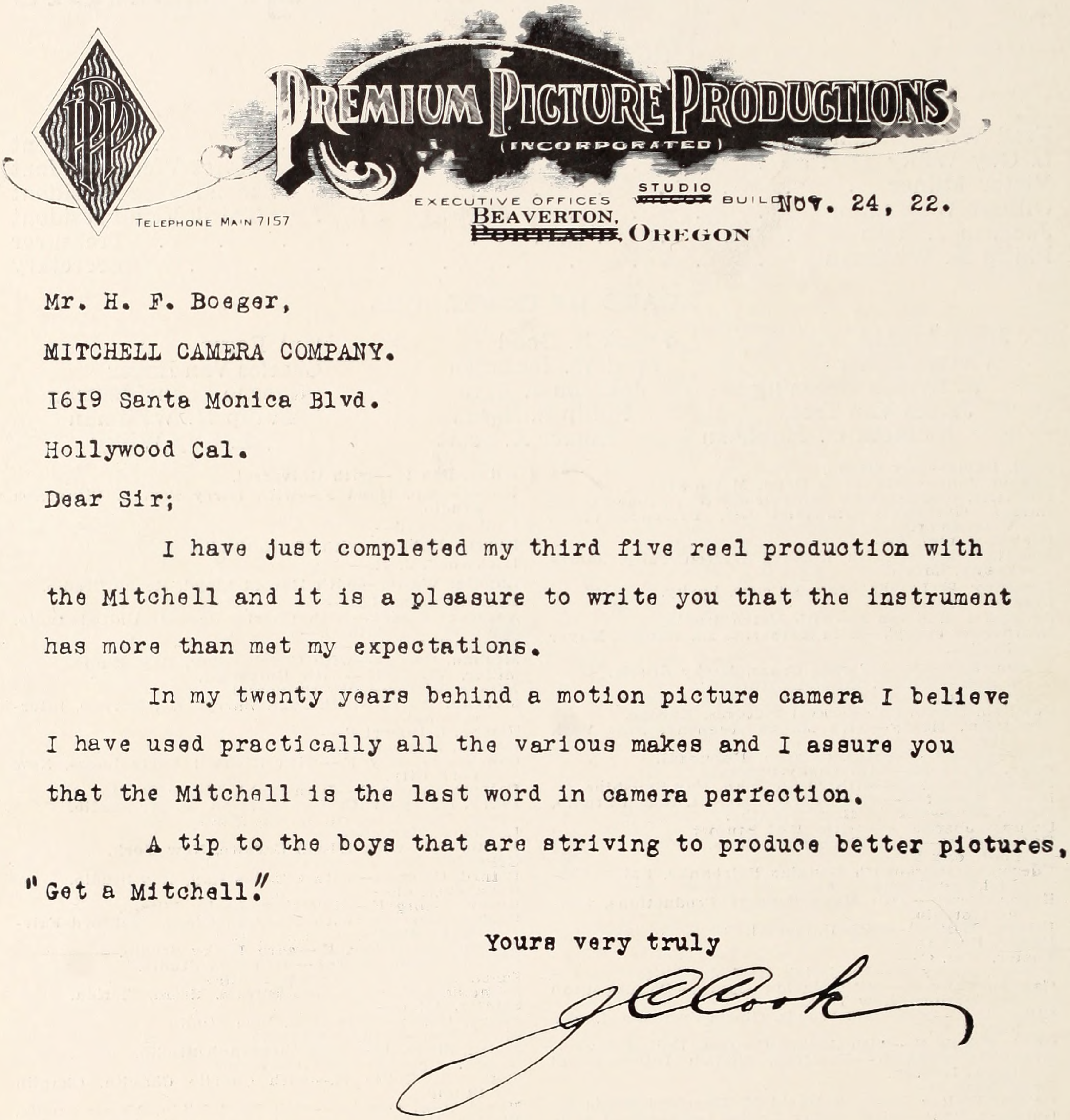

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